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Paper Industry Experiences Greater Activity

Mills Preparing for Broadening Demand, As Accumulation of Orders Exceeds Record of Any Period Last Year—Per Capita Consumption Around 200 Pounds A Year—New York State Leads In Number of Paper Mills, With Massachusetts Second—Paper Industry In Better Condition Than Most Trades of Same Size

Since the beginning of August many paper mills have increased production, with some manufacturers operating on tour to five day schedules, due to a heavier accumulation of orders than has been noted at any time during the year. Mill agents representing fine paper manufacturers are experiencing a broadening of demand for book papers, bonds, and covers, and other lines consumed in direct mail advertising, in view of the wider campaigns which are scheduled for fall. *Dun's Review* states in a survey that has just been made of the paper industry.

"The paper industry, as a whole," the survey continues, "is in a far better condition than most trades of the same size. As paper is a necessity to almost every phase of daily life, its consumption can be curtailed only to a fixed limit. For, nearly 200 pounds of paper are consumed each year in the United States by every man, woman, and child. The most extensive use of paper, of course, is as a medium for the communication of ideas through printing and writing, but its other uses are so numerous and so varied that every one is directly or indirectly a customer of the paper industry in many important ways, most of which have become so familiar that little attention ordinarily is paid to them.

Paper Consumption Heavy

"The extent to which paper is used is apparent in the statistics, which reveal that about 24,500,000,000 pounds of paper were consumed in the United States last year. That is equivalent to a little more than 11,000,000 tons, which brings the per capita consumption to around 181 pounds. In 1930, the per capita consumption was 201 pounds; in 1929 it reached 221 pounds. The per capita consumption of paper in the United States is approximately double that of any other nation in the world. For more than half a century, the United States has been the largest paper maker and the largest paper user in the world, and the manufacture of paper is considered one of the fundamental industries of the country. While it is listed as seventh in the major industries of the United States, it ranks first in the important part it plays in the marketing of nearly all commodities.

"The enormous quantity of paper consumed last year," the survey points out, "was produced and manufactured in 3,126 establishments, and had a value of around $1,900,000,000. Of the 883 paper and pulp mills listed, New York State leads with 127 mills, and Massachusetts takes second place with 73. Pennsylvania ranks third with 56 mills, while Ohio is fourth with 53; Wisconsin fifth, with 48; Michigan sixth, with 42; New Jersey seventh, with 36; Illinois eight, with 29; Connecticut ninth, with 27; Maine tenth, with 26; Indiana eleventh, with 24; and Washington twelfth, with 15.

Stricter Credit Control

"As the result of stricter control of credit extension, the Industrial Credit Loss Survey prepared by R. G. Dun & Co. reveals that bad debt losses have been reduced, the average being .739 of 1 per cent, based on 1931 sales in the paper industry. Unfortunately, the favorable trend of the insolvency record in 1931 was not continued during the first six months of 1932. In the latter period, four manufacturers failed, in contrast to only one for the entire twelve months of 1931, and the liabilities of the defaulting firms totaled $1,734,873, which was in excess of the combined liabilities for the firms that defaulted during 1930 and 1931. Among the wholesalers and retailers of paper, an upward trend in failures also has been in evidence, as sixteen were set down for the first six months of the current year, as compared with six for the full twelve months of 1931, and fourteen in 1930."

To Start Two Additional Machines at Corinth

[FROM OUR REGULAR CORRESPONDENT]

CORINTH, N. Y., August 22, 1932.—Improved conditions are reported from the local branch of the International Paper Company and the entire equipment will be operating at full capacity within a few days. Two more idle machines are being prepared for production and the entire equipment will be operating when these are brought into action next week.

Despite the fact that a recent wage cut was made it is expected that the increased operations will result in thriving conditions hereabouts and business men are enthused over the outlook. Employees who have been working six hours a day for the past few months will observe a new schedule of eight hours daily.

Ontario Paper Manufacturers Fairly Active

Fine Paper Mills Are Placing Moderate Amount of Tonnage With Wholesale Paper Merchants and Various Other Consumers—Volume of Coarse Paper Being Produced Slightly Higher—Paper Board Mills Continue to Operate Lightly

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, ONT., August 22, 1932.—The coming of the fall months usually witnesses an expansion in the paper industry which should lend further encouragement to the market. With the last week in August at hand and only two weeks left to the vacation period, those in the pulp and paper industry are more than ever on the alert for tangible signs of the usual autumn upswing in business which should become manifest after Labor Day. In some branches of the wholesale paper field there are already signs of a turn and a distinctly better tone is observable. This is the most noticeable in the flat paper department. There are more enquiries just now for fine papers than there has been for months and in some quarters these enquiries have crystallized into actual business. Demand for book paper, bonds, writings and offset papers has stiffened perceptibly during the past week or two, although it must be said that on the whole August has been a quiet month. There is a decidedly more optimistic tone to business generally in Canada and the paper industry is experiencing it as well as many other commercial lines.

Slight Increase in Activity

In paper manufacturing circles there has been some slight increase in activity but it has not been sufficiently evident to base any belief in a decided change for the better until the fall sets in at least. The coarse paper market, for instance, has been inactive all summer and before that, and while in a few cases plants are turning out slightly increased tonnages, the volume has not materially changed for the better. Shipping of manufactured articles is light and until it improves and the general retail and wholesale markets for various commodities justify the purchasing of wrapping paper and bags, the coarse paper market will continue quiet. The board mills, also, are operating lightly with reduced requisitions from the paper box industry, which, in turn, is still suffering from the depression. The printing industry is decidedly quiet although some of the larger plants in the printing and lithographic fields report a fair volume of business on hand. On the whole it cannot be said that the printers are good customers of the paper trade at the moment.

Fine Paper Mills Fairly Active

Fine paper mills are enjoying a fair degree of activity and, with the exception of the coated paper manufacturers, are placing a fair tonnage of the cheaper grades with the wholesalers and various consuming sources. On the other hand, light weight papers are in rather small demand with the tissue, toilet and specialty mills operating pretty close up to the machines. In no line of paper manufacture these days are the machines any more than a step or so ahead of current orders for paper. Of course the big Canadian National Exhibition in Toronto, which is due for a two week's run starting the end of August, uses a lot of printing and paper but as this comes annually it is, as a rule, pretty well discounted ahead and is not more than a slight factor in the total consumption of paper.

Paper converting lines continue dull. There is still a light demand for envelopes and general lines of manufactured stationery. Consumption of paper by the publishing trade is increasing slowly but with advertising down all summer many paper accounts have suffered along with the publishers. Manufacturers of grease proof, waxing and glassine papers report a fair demand for these papers, although it is said that these lines are feeling to some extent the inroads of Cellophane, which is now being manufactured in Canada.

Seek to Re-open Pine Falls Mill

Word comes from Winnipeg that the Minister of National Resources of Manitoba is being urged to take steps to have the Pine Falls mill get into operation again. It is contended that circumstances make the reopening of the mill possible and the Government is being urged to demand that the company live up to the condition of its agreement that the mill be kept open ten months in every year. Failing this it is suggested that the agreement be cancelled under which the company have a concession of 2,783 square miles of timber upon which there are six million cords of pulpwood. It is claimed that the excess pulpwood which had collected at the other mills of the Abitibi Power and Paper Company has now been used up. Of the two mills that were opened up one is now closed and the other will cease to operate this month. The bank loans, which it was stated should be cleaned off, have been sharply reduced and thus the banks are not in control to the extent they were when the Pine Falls mill closed, it is claimed. It is also pointed out that the pressure on the company's liquid resources for the development of the Abitibi Canyon power site has been relieved with the Ontario Government's assistance in the project. This, it is pointed out, should release a large amount of capital tied up in this enterprise for employment elsewhere in the company's activities. There are said to be ample wood supplies available for the early opening of the mill. There are 3,000 cords at the mill and 16,000 cords at or near the railways sidings. Of this amount at least 14,000 cords are fit for paper making. This amount, it is claimed, would keep the mill running with one machine for eighty days, by which time additional supplies from the settlers would be received.

Urge Reopening of Fort William Mill

The question of the continued shutdown of the Fort William mill of the Abitibi Power and Paper Company was before the council of that town when the following resolution was passed: "Whereas it has been alleged the Port Arthur mills had the *Cleveland Plain Dealer* contract for news print, but lost it for some reason or other, and whereas it is alleged that the Fort William mill had the contract for the *Detroit Free Press* but that this order was transferred to the Port Arthur mill at a time when it was felt there was no just reason for closing the Fort William mill, owing to the fact that it is said there was still some 16,000 cords of wood in the pile and in the water at the mill. Therefore we are greatly concerned with the operation of the Fort William mill and request the Abitibi company to give us their version of the foregoing allegation in order to assist us in our efforts to bring pressure to bear on the company with a view to reopening the mill."

Papyrus Now Grows in Toronto

A seminar on plant sciences, attended by teachers of botany and Pharmacognosy from Canada and the United

States, was held in the splendid new botany building of the University of Toronto, in August, covering a week. One of the items on the program was a lecture on paper making by T. Linsey Grossley, of Toronto, who in discussing the earlier forms of raw materials for writing surfaces, exhibited fine specimens of papyrus about six feet long, freshly cut, by the courtesy of Professor R. B. Thomson, head of the department of botany, from plants growing in the new greenhouses. In the discussion that followed, a suggestion was made that paper and sandwich-making might be included in pharmacy curricula.

Firstbrook Boxes, Ltd., Financing

Following extended negotiations with institutions holding a large proportion of its brands, Firstbrook Boxes, Ltd., Toronto, manufacturers of paper boxes and other lines, passed into default on August 15 following failure to pay bond interest due June 15 on its 6 per cent first mortgage bonds of which some $487,500 is outstanding. It is stated that no agreement could be reached with large bondholders who after a comprehensive study of the situation are inclined to favor foreclosure rather than compromise their rights under the trust deed. Bondholders have been notified of a meeting to be held on September 14 at which a protective committee will be appointed. Sale of the company's assets, if necessary, would be possible at a figure in excess of $1,000,000. The company's comparatively new plant is at Mount Dennis, near Toronto, and plants are owned at Thessalon and Penetagn, Ont. It has Canadian and British Empire rights to patents owned by Robert Qair Company, New York.

Notes and Jottings of the Trade

The sympathy of many friends in the paper industry in Toronto and elsewhere will be extended to H. A. Goldsbrough, Toronto manager for the Hodge-Sherriff Paper Company, Ltd., in the death of his daughter, which occurred recently following a long illness. Mr. Goldsbrough and his wife have gone on a trip to the former's old home in England following their sad and trying experience.

John Finlay, of the Alliance Paper Mills, Ltd., has returned to Toronto after an enjoyable holiday spent in the Muskoka region.

The sinking of logs while being floated to the saw mill is responsible for a considerable annual loss to Canada's pulp and lumber industries. In a recent year the loss of logs in that industry attributable to log sinking was estimated to amount to 225,000 cords, valued at $2,700,000, according to the Department of the Interior at Ottawa.

E. T. Nesbitt, Ltd., have been granted a charter to carry on paper and pulp manufacture, with headquarters at Quebec City and a capital stock of $45,000. Among the incorporators are John G. Cotte, Pierre Deguise and Michael Dusseault, of Quebec.

Permission has been granted by the Department of Lands and Mines of New Brunswick for the cutting of pulpwood on Crown lands in Albert County for export to the United States. Ordinary operators are forbidden to cut pulpwood on Crown lands for export, but in the Albert County instance a special order-in-council was passed by the Government authorizing the operation which is being carried out by the Mitchell Lumber Company for export to Maine mills. The wood is now being shipped from Albert, the Mitchell Company paying an additional dollar per thousand feet for wood cut on Crown lands. This made the stumpage payment stand at $3.70 per M., the regular rate being $2.70.

A five-story boarding house belonging to the Brompton Pulp and Paper Company at Bromptville, Que., was destroyed by fire recently, the loss being estimated at $35,000. Five families were made homeless.

Paper Demand Improves in Boston

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., August 22, 1932.—The general tone of the wholesale paper market has improved, although reports from individual houses vary. Some of the fine paper merchants are decidedly more optimistic, while others have not experienced much actual change for the better. Ledgers have been moving fairly well. One house notes that all salesmen report that their customers are placing substantial orders, particularly for bonds. A merchant feels that, considering conditions, his company has been fairly fortunate, and that the upturn came at a time when it was not really expected. In wrapping paper the volume of business has continued about the same with some houses. With others, it has improved. A wrapping paper merchant noted that while August is usually one of the low months, the current month is better than July. In certain quarters, the demand for paper specialties, including hygienic merchandise, has improved. Twine specialties have also been moving actively. More inquiries are being received in all lines of paper and twine.

With the situation among the fine writing mills better, the status of the paper stock market has improved, or is at least on the verge of improvement. There is more inquiry. After a long period of dullness, the paper stock market has become firm as a whole. Prices have stopped declining, with some commodities stronger. Fine writing mills have begun to use up rags they have had on hand as long as two years. One of the dealers comments that when the supply is gone there is bound to be a stimulus in the market. "Supply and demand regulate prices and the present supply will be inadequate." Kraft papers and grades which have been moving freely from packers to the mills are not plentiful. In mixed papers and book stock there is not much change, but most of the paper stock dealers look for an advance in September. Gunny bagging is firm. Owing to the prospective strike in England, notes a dealer, there is a shortage of gunny bagging and higher prices will be the logical outcome. Burlap for paper making is quiet, but shredders are interested. Prices are unquotably changed.

Utica Carton Co. Starts

UTICA, N. Y., August 22, 1932.—A new industry, the Utica Carton Company, has started manufacturing operations in the Maher Building, 325 Oriskany Street East.

The company, which is occupying the upper three floors, is headed by H. M. LeFevre, who recently came to Utica from Beaver Falls and who said today the company will employ about 25 persons.

The company makes folding paper boxes and cartons which are used for a variety of purposes.

Mr. LaFevre said his product is principally used by clothiers, bakeries, candy stores, textile plants and manufacturers of candies and medical supplies.

The concern also manufactures sanitary wax paper dishes or trays, such as are used by grocers and meat dealers.

Mr. LaFevre said his plant is equipped to print the containers and will also serve local printing establishments in cutting, stitching and stapling work.

Pilgrim Calendar Co. Chartered

PROVIDENCE, R. I., August 1, 1932—The Pilgrim Calendar Company, Inc., has been incorporated to manufacture calendars. The capital stock is 500 common shares of no par value. The incorporators are William Maccarone, 639 Laurel Hill Avenue, Cranston, R. I., Albert Maccarone and Emily Maccarone.

Two Separate News Print Mergers Proposed

Leading Canadian News Print Interests Now Directing Efforts Towards Formation of Two Large Mergers, Instead of One Consolidation—Would Help Relations Between Producer and Consumer by Disposing of Any Idea of Monopoly

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., August 22, 1932.—It is stated here, on what appears to be good authority, that those who are working on the proposed amalgamation of the leading news print companies are now directing their efforts towards the formation of two large companies instead of one, this because of wide differences in the capital structures of the various units.

Recent financial developments are said to have helped forward the plans materially. Heretofore the fact that Consolidated Paper, the largest operator from the point of view of productive capacity, has a moratorium on bond payment interest was a stumbling block to any agreement on terms of the exchange of securities. Now, however, with the bonds of other leading companies in default, this difficulty has been eliminated.

Dealing with this point, the *Financial Times*, of Montreal, says:

"It is believed to be significant in some quarters that no particular haste is being shown by protective committees for the various bonds—Abitibi, Price Brothers, and Lake St. John—to submit a scheme of arrangement to security-holders of the companies. In the case of Abitibi, of course, directors of the company although the bonds are now actually in default have left the door open for the payment of June 1st interest, and in the case of Price Brothers it is reported that opposition has developed in powerful quarters to the new protective committee suggested for bondholders of this company.

"With the question of position of bondholders eliminated the way to establishing a basis for consolidation should be made much easier as equityholders have seen the value of their holdings shrink in market value to a point where they would be unlikely to put forward serious opposition to any arrangement that would hold out hopes for the physical and financial rehabilitation of the industry.

"The more recent suggestion of two separate mergers rather than the one comprehensive consolidation would not only facilitate the merging of the companies, but would help the relations between the news print producer and the consumer by disposing of the idea of a monopoly that might be conveyed by the latter course."

Consolidated Paper's Securities

During the past week there has been going forward to the various security holders of Canada Power and Paper Corporation and its constituent companies new securities of the Consolidated Paper Corporation, successor company. Such security holders totalled between 15,000 and 16,000 it is stated. Those to whom these new securities are being mailed include old security holders in Belgo-Canadian, Anticosti, Port Alfred, St. Maurice Valley, Wayagamack and Canada Power and Paper itself, the parent company. In March last Consolidated Paper common was traded on the local curb market, in the unlisted section, some twenty shares going through at 4.

Trade Opportunities in Middle East

Geo. R. Heasman, Canadian Trade Commissioner in Java, reports to the Trade and Commerce Department that the countries of the Middle East, consisting of Netherlands India, British Malaya, and Siam, offer a market for wood pulp, paper, and paper products valued at approximately $10,680,000 in 1929. Imports during 1930 and 1931 fell considerably, but there still remains an estimated market of $5,930,000. In 1929 British Malaya imported paper and paper products valued at $3,986,993, Netherlands India imported to the value of $5,558,161, and Siam to the value of approximately $1,000,000. In 1931 imports into British Malaya fell to $2,140,393. Import figures for Netherlands India are not yet complete, but it is estimated that pulp, paper and paper products were imported to the value of $3,226,962. Imports into Siam are estimated at $560,000.

Due to the lack of a direct shipping service, he says, it is almost impossible for the Dominion to meet continental competition in shipments to Siam. In so far as British Malaya and Netherlands India are concerned, however, Canadian paper manufacturers, especially those located in British Columbia, should be able to secure a larger share of this market than they have been able to do in the past. With a direct steamship service from Vancouver to this territory, and freight rates considered to be competitive with, and some times lower than, rates from the Continent, Canadian prices should not be out of line. The difficulty, of course, is that the continent of Europe makes a lower grade of paper in the majority of lines than is commonly manufactured in Canada, and it is this lower quality of paper which is chiefly in demand. Shippers in Eastern Canada are at a serious disadvantage from the start by reason of freight rates. Less than carload shipments going via New York are subject to a heavy inland freight, and if shipment is made via a Canadian port, transshipment is necessary usually in England; and this is not desirable if it can be avoided. The freight rate is also likely to be higher than a through rate quoted from the continent of Europe for a similar cargo. It is hoped in the very near future to have a direct service to this territory from Halifax. If and when this is secured, Canadian factories located in Eastern Canada will automatically be placed in a better position to compete in this market.

Donnacona Paper Company

At a meeting here of debenture holders of Donnacona Paper Company, presided over by Col. Allan A. Magee, approval was voted of a plan of reorganization which has already been accepted by the company's bondholders. Under this plan holders of the 6 per cent debentures will receive two shares of Class B common stock for each $100 debenture.

Paper Mill Employment

WASHINGTON, D. C., August 24, 1932.—The July employment index number for the paper and pulp industry was 72.2 compared with 73.3 for June and 81.1 for July of last year, taking 1926 at 100, according to the Bureau of Labor Statistics, Department of Labor. Pay roll index for July was 45.9 compared with 49.9 for June and 68.1 for July of last year.

July employment index number for the paper box industry was 66.5 compared with 69.1 for June and 80.1 for July of last year, while the pay roll index in these plants for July was 52.8 compared with 57.8 for June and 76.9 for July last year.

Chicago Paper Market Trend Little Changed

Fine Paper Section Continues Spotty, With Future Outlook Uncertain—Strong Efforts Being Made to Stabilize Sulphite Bond—Kraft Wrapping Paper Market Marking Time, With Profit Margin Small and Collections Slow

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., August 22, 1932.—While no great change was registered in the Chicago paper market during the past week, mill representatives and buyers of paper from Wisconsin, Minnesota, upper Michigan and Ontario expressed pleasure over the recent ruling of the Interstate Commerce Commission authorizing a 3 cent reduction in freight rates covering shipments of printing and wrapping paper, box board, paper boxes and similar articles. It is also reported that the 2 cent surcharge may be eliminated in about thirty days, in virtually the same territory. The reduction goes into effect August 20 and marks the culmination of quite a struggle.

The kraft market seems to be going along at the new prices set when the recent rather unforeseen break came along. Jobbers report the profit margin small and collections slow. Some improvement is expected, however, as the basis for general business improvement seems to be getting under way with improved commodity, bond and stock prices and a nation wide effort to ease credit begins to look resultful. Sulphite bond is reported as uncertain, although strong efforts are being made to firm this market. Fine papers are spotty, the Fall run of business having not yet appeared fully on the horizon. News print figures released here show improvement and are heartening. Ground woods also showed a slight turn for the better. Books and covers were in only fair demand. Paper board also showed some slight improvement, with the big package exposition here perhaps helping in this sentiment. Waste papers were reported very dull.

Paper Freight Rates Reduced

Much interest was evidenced, in this section, over the move of the Interstate Commerce Commission authorizing western railroads to reduce freight rates on August 20 covering shipments of printing and wrapping paper, boxboard, paper boxes and similar articles between points in Wisconsin, upper Michigan, Minnesota and Ontario on one hand and Chicago and intermediate points in Illinois, Missouri and Iowa. The news comes to representatives of the paper industry after considerable investigations and hearings. Territories affected by the new Commission ruling makes it possible for the Chicago market to immediately feel the effects of the edict.

Paper Salesmen Hold Golf Outing

Fifty Chicago paper salesmen and guests properly celebrated the semi-final event of the S. A. P. I. golf season at the Park Ridge Country Club on Friday, August 19. While the lunch and dinner were high lights of the program the big fireworks came in the efforts to solve the intricacies of the sporty golfing layout. Incidentally, Courtney Reeves, golf chairman, announced that the final event —most important of the series as it involves competition with the New York Division of the Salesmen's Association of the Paper industry and a long list of prizes—would be held at the Olympia Fields Country Club on Friday, September 16. The Middle West Division is already beginning to boost this event and expects a big turnout of members and guests.

Prize winners on August 19 included the following: Low net, handicap 17 or under, Alec Gilman; low net, handicap 18 to 30, R. R. Cook, International Paper; low net first 9, Bert Tucker, Parker, Thomas & Tucker; low net second 9, Harold Knott, Eastern Manufacturing Company; least number of putts, Clayton Sherman, Seaman Paper Company; blind bogey, J. H. Coy, Flambeau Paper; low net foursome composed of Bob Wilke, E. D. Buchanan, Bill Tilden and Harold Knott; low putts foursome, Frank Prentiss, P. H. Oliver, Steve Davis and Clayton Sherman. Lowest score on the par 3 holes, Harry Johnson. It looks, incidentally, as though the "old guard" came through in a big way over the Park Ridge fairways.

News of the Trade

Much interest was evidenced by the paper industry in the recent convention and exposition of the National Food Distributors Association which was held at the Hotel Sherman, Chicago, August 15 to 17. A splendid display of package foods by the leading manufacturers and more than fifty additional package-food displays beautified the exhibition halls and attracted the attention of paper executives interested in this specific phase of paper usage.

John L. Meyer, of Madison, Wis., was elected secretary-treasurer of the Inland Daily Press Association at a meeting of the directors of that association held in Chicago this week. Mr. Meyer is well known to the paper trade, having recently been field director of the George W. Mead Paper Institute of Milwaukee; a former editor of the *National Printer Journalist* and chairman of the John Meyer Press Exchange of Madison. The next convention of the Inland Daily Press Association is to be held in Chicago in October.

Chicago paper men evidenced a great deal of interest in the new executive slate of the Crown Willamette Paper Company, the following men have been elected by stockholders at a recent meeting. Charles Blyth and H. D. Pillsbury were elected to the directorate to succeed George Leib and E. S. Pillsbury. Directors elected two new vice-presidents, Frank Schwabacker and F. G. Wight, and appointed Ludwig Frank and Charles M. Whitney assistant secretary and assistant treasurer, respectively.

T. E. Hollingsworth, formerly connected with the Syracuse office of the River Raisin Paper Company, is now handling this territory for that company from the Chicago offices at 208 West Washington street. Mr. Hollingsworth succeeded W. A. Rahfield, resigned, and will be assisted in developing this territory by G. W. Holland, formerly in the corrugated department at the mills at Monroe.

United Paperboard Busy at Wabash

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., August 22, 1932.—H. D. Newel, general manager of the United Paperboard Company of Wabash, Ind., states that 380 tons of finished products were produced at the plant during the last week, the highest mark in several months. August orders show a large increase over those of July and the plant will go on longer working schedule this week, he said.

TAPPI Fall Meeting Program

Nonotuck Hotel, Holyoke, Mass., Sept. 14-16, 1932

Tuesday, September 13, 1932

9:00 A.M. Registration (all day)
10:00 A.M. Executive Committee (all day)
5:30 P.M. TAPPI Council

Wednesday, September 14

9:00 A.M. Registration (all day)
9:30 A.M. Call to Order
Announcements
Presentation of Papers
Symposium on Paper Making Variables
Frederick C. Clark, *chairman*

1. Relation of Sheet Properties and Fiber Properties in in Paper, by R. H. Doughty, Forest Products Laboratory
   Discussion by Roger B. Brown, Trenton, N. J.
2. Drying of Paper—I—Mechanism of Air Drying, by D. W. McCready, University of Michigan
3. White Water Use in Fine Paper Mill, by Samuel Hellberg and Andrew Jackson, American Writing Paper Company
   Discussion by C. M. Baker, engineer, American Paper and Pulp Association.
4. Chemical Trim Process, by L. M. Booth, Booth Chemical Company

Thursday, September 15

9:00 A.M.
Symposium on Pulp Specifications and Classification
John L. Parsons, *chairman*

1. Use Requirements of Pulps and Stuffs, by P. K. Baird and R. H. Doughty
2. Pulp Classification, by C. C. Heritage
3. Present Status of Ability to Specify, by N. L. Nourse
4. Pulp Testing Methods
5. Relative Stability or Permanence of Cotton and Wool Cellulose, by H. F. Lewis, Institute of Paper Chemistry

Friday, September 16

C. C. Heritage, *chairman*

9:00 A.M.

1. Alignment and Line Coordinate Charts, by D. S. Davis
2. Proposed TAPPI Specification for Chromium-Nickel-Iron Castings for Sulphite Pulping Equipment, by J. D. Miller, Chairman, TAPPI Materials of Construction Committee
3. A Physical Theory of the Beating Process, by W. Boyd Campbell, Forest Products Laboratories of Canada
4. Beating by Impact, by A. B. Green
5. Direct Chlorination as an Aid in the Bleaching of Sulphate Pulp by J. D. Rue and J. S. Sconce, Hooker Electrochemical Company
6. Determination of pH in the Presence of Chlorine, by H. F. Lewis and Stephen Kukolich

AFTERNOONS

Luncheons
Mill Visits or Recreational Program

Papers to be Read by Title

1. Roll Coaters vs. British Coaters, by F. W. Egan, J. O. Ross Engineering Corp.
2. A Study of Evaluation of Kraft Bleach Processes, by F. J. Cirves, Filer Fibre Co.
3. Temperature Curves and the Sulphite Cook by Ragnar Monnberg, Abitibi Fibre Co.
4. Practical Sulphite Cooking, by Ragnar Monnberg
5. Assembly and Calibration of the Glass Electrode, by E. H. Voigtman and B. W. Rowland, Institute of Paper Chemistry

Highlights of Program

A splendid practical program on wood pulp specifications and classification has been arranged. Would it not be of great help to you to know how to specify the kind of pulp you would require for a bond paper so that you would not buy a pulp better suited for a book of papeterie? Would not the classification of pulps, based on a use factor, mean more than simply buying a good bleached sulphite at a price?

The Institute of Paper Chemistry has completed its report on the comparison of the stability and permanency of cotton and wood cellulose. This question has been of universal interest. Its discussion should bring up points that we have all tried to explain. Lend your ideas and discussion to this much discussed subject.

The final report of the TAPPI Fellowship will be given. Mr. Doughty has spent three years on this work. To get the most out of this you should hear him discuss his subject.

Have you had trouble in determining the pH of your white water washer or beater—when chlorine was present? A method has been developed and its practical use and advantages will be discussed.

The paper by D. W. McCready will contain the results of his investigations into the application of chemical engineering principles to the unit process of paper drying. This is the first of a series of papers to be presented by Mr. McCready of the faculty of the University of Michigan.

The initial effort of the Technical Association in writing specifications is embodied in the report of the TAPPI Materials of Construction Committee on the selection of an alloy suitable for use in handling the liquors handled in the sulphite pulping process.

Two papers relate to stuff preparation, one by W. Boyd Campbell outlines a theory concerning what happens to fibers during the beating process. Doctor Campbell has devoted many years to research into this problem. A. B. Green's paper deals with the commercial application of some of the beating theories to the end that machinery may be designed and constructed to accomplish efficient stuff preparation.

Recreational Program and Mill Visits

It is the practice of the association to prepare well balanced Fall meetings which will provide opportunities for members to discuss fundamental principles of pulp and paper making, to become personally acquainted with other men in the industry and to visit mills to see how the papermaking processes are actually carried out by local companies.

On Wednesday, September 14th, there will be a joint luncheon at the Nonotuck Hotel for members and their guests. Following the luncheon the local mills in Holyoke will have "open-house" and guides will conduct parties inspecting the mills and laboratory of the American Writing Paper Company, the Crocker-McElwain and Chemical Paper Manufacturing Companies, the Carew

and Hampshire Paper Companies, and the power house of the Holyoke Water power Company.

A golf tournament will be held on Wednesday at the Orchards. H. A. Moses, president of the Strathmore Paper Company, will present a handsome trophy to the low net winner.

In the evening of Wednesday there will be an informal dinner-dance and entertainment on the Nonotuck roof. Members are urged to bring their wives along to enjoy the many excellent social features of the convention.

On Thursday afternoon there will be more mill visits with the Strathmore Paper Company at Mittineague and Woronoco, the Keith Paper Company and Esleeck Paper Company at Turners Falls, Massachusetts, and Dexter & Sons at Windsor Locks, Connecticut, acting as hosts.

Another golf tournament will be held on Thursday at the Mount Tom Golf Club, the winner of which is to receive the beautiful S. L. Willson trophy.

The traditional banquet of the association will be held on Thursday evening, during which George E. Williamson, treasurer of the Strathmore Paper Company and former president of the Technical Association, will be toastmaster. It is expected that Governor Ely of Massachusetts will be the principal speaker.

Friday afternoon will be given over to a special outdoor program at Hampton Ponds where swimming, boating, dancing and even airplane rides may be enjoyed.

A fitting climax to the program will be a real old fashioned New England clambake with everything that goes with such a pleasant affair.

The mills of the vicinity will be open for inspection for any who may wish to remain, and members are enthusiastically advised to see the golden splendor of the Berkshires at this season.

Ladies' Program

The Connecticut Valley has so much to offer in scenic beauty that a special program has been arranged for the benefit of the ladies who are expected to attend. The chairman in charge of the ladies' program is Frederick A. Curtis of the American Writing Paper Company.

Following the joint luncheon on Wednesday the visiting ladies will meet with the members of the local ladies committee to become acquainted so that they may more fully enjoy the dinner-dance in the evening.

On Thursday there will be a luncheon at the Orchards, following which golf or bridge will be played. In the evening, dinner will be served at the Northampton Tavern. The Tavern has an interesting collection of antiques which is well worth seeing.

To Serve New England Breakfast

A real New England breakfast will be served on Friday morning at eleven at the Bookshop in South Hadley. A New England breakfast is distinctive—nowhere but in New England would baked beans and apple pie be served for breakfast. After breakfast there will be an interesting drive through the many college campuses of the Connecticut Valley including those of Smith, Mount Holyoke, Amherst and Massachusetts State College. The ladies will then join the party at Hampton Ponds and will participate in the outdoor sports and the New England clambake. The local committee is anxious to have ladies attend and enjoy their friendly hospitality. All who plan to attend should make room reservations at the Nonotuck Hotel in Holyoke and when purchasing railroad tickets be sure to ask for a certificate. Members traveling but short distances by train are especially requested to obtain certificates for the benefit of others since 100 certificates must be obtained to entitle members to the half fare privilege for the return trip.

Increased Demand at Indianapolis

INDIANAPOLIS, Ind., August 22, 1932.—Several members of the local paper trade profess to see signs of more demand. They point to an increase in inquiries as one of the surest signs. Then, too, there is a general feeling of optimism that has encouraged not only the paper trade but other lines as well. And this is in spite of the last monthly report of Indiana university's financial and statistical department which shows that trade continues to droop.

Most of the inquiries in the fine paper division come from advertising agencies and printers who are dickering for direct mail campaigns which will materialize this fall. Judging from reports this volume will be larger than last year, but below normal considerably. It seems, according to local newspaper executives, that the national advertisers are keeping up their volume of display in far better shape than the local advertisers. Whether these local advertisers are going to use a greater proportion of their advertising budget on direct mail rather than newspaper space remains to be seen, but early indications point in this direction.

An increase is seen in the bag market, not much, it is true, but any widening demand nowadays is very noticeable. The container and box market continue about the same as a week ago. Here, too, inquiries are more numerous and salesmen report they are meeting with less sales resistance than formerly. At least the purchasers are willing to listen to their stories, which they would not do some time back. Factories in Indiana have not increased their production much and many of them are filling most of their orders from warehouse stocks, but if a decided increase in demand is probable they are so situated that production can be speeded at a moment's notice.

A better demand is predicted this fall for building papers which did not go so good this spring and summer. If the home loan bank gets into operation in time to function this fall, building should see light again for there has been little new construction in this territory during the last three years.

Marketing Plan Effective

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., August 22, 1932.—Initial efforts of Wisconsin paper manufacturers, principally in the Fox River Valley, to join in their marketing efforts are proving satisfactory, according to a statement made by Frank J. Schneller, vice-president and sales manager of the Gilbert Paper Company, Menasha, Wis. The mills organized a co-operative sales body known as "The Wisconsin Paper Group," in which most of the sales managers are pooling their efforts to produce a greater demand for Wisconsin brands. One feature especially effective in the marketing is the assembling of composite car loads from several mills. The paper merchants are able to buy in less than car load lots in this manner from manufacturers, but have the benefit of car load freight rates. The association functions to assemble the deliveries into one car. Advertising campaigns also are being worked out featuring Wisconsin brands.

Holyoke Elects Paper Man Mayor

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., August 23, 1932.—Henry J. Toepfert, formerly vice-president and production manager of the White & Wyckoff Company, manufacturing stationers, was elected mayor of Holyoke at a special election Tuesday of last week. He took office yesterday.

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Philadelphia, Pa.—Taylor & Co., Inc., Provident Trust Building, Philadelphia, has awarded a general contract to Frank R. Heavner, Norristown, Pa., for the construction of a new mill at Betzwood, near Philadelphia, for the manufacture of vulcanized fiber and laminated sheet products. The company has secured a tract of about 43 acres of land at place noted, and initial building will be followed by others in the future. The structure will be one-story, about 100 x 700 feet, and will be equipped to give employment to about 75 men. It is proposed to begin superstructure at once, having unit ready for service by close of year. It will cost about $125,000, with equipment. Later expansion of company at plant site is reported to provide for a total investment of close to $500,000.

Shelton, Wash.—The Rainier Pulp and Paper Company, San Francisco, Cal., has awarded a contract to James Coyne, Port Townsend, Wash., for the construction of a dam on Goldsborough Creek, near Shelton, for water supply service at Shelton mill. Work will be placed under way at once.

Hagerstown, Md.—The Security Paper Company, manufacturer of kraft paper wrappers and kindred specialties, has resumed production at plant at Security, near Hagerstown, following a shut down for about 24 months. The plant will give employment to about 25 operatives. It is expected to increase present output schedule at an early date.

Mount Wolf, Pa.—The Superior Paper Products Company, Carnegie, Pa., manufacturer of corrugated boxes and containers, is breaking ground for proposed new branch plant at Mount Wolf, to consist of a one-story unit, estimated to cost close to $40,000, with equipment. It is expected to have the plant ready for operation by close of the year.

New York, N. Y.—The Down Town Carton Company, Inc., has been organized with a capital of $20,000, to take over and expand company of same name, with local plant at 718 East Eleventh street, manufacturer of paper boxes and containers. Incorporators of the new company include Louis E. Brockman and Milton Miller.

Mount Carmel, Ill.—The United Paper Board Company has resumed production at its Mount Carmel plant, following a shut down for about seven months. Company has secured a heavy volume of orders, and in addition to regular day operations, will operate a night shift.

Vernon, Cal.—The California-Oregon Paper Mills, 2001 East 57th street, have awarded a contract to E. A. Irish, Los Angeles, for the installation of a new pipe line for water service at its local mill. Work will begin at once and pushed to competion.

Newark, N. J.—Schiffenhaus Brothers, 326 Riverside avenue, manufacturers of corrugated paper boxes and containers, as well as other paper products, are running the first noted department of plant on a maximum production basis, with overtime schedule to handle current orders. It is expected to hold to this basis for an indefinite period. The remainder of the plant is engaging on a regular five and one-half day week schedule.

Flushing, N. Y.—The Sturdibilt Fibre Products Corporation, recently organized with capital of 300 shares of stock, no par value, by James F. Cella, 45-20 171st street, Flushing, and associates, is said to be planning early operation of a plant in this vicinity for the manufacture of a line of fiber products. William J. Cella, 303 Avenue C, Brooklyn, N. Y., is interested in the new company.

Elkhart, Ind.—The American Coating Mills are holding to a good production schedule with sizable working quota. Company reports increased sales in recent weeks, and expects to hold to production schedule at mill for an indefinite time.

New York, N. Y.—The Saxon Paper Products, Inc., 15 Mercer street, has arranged for an increase in capital from $100,000 to $125,000 for general expansion in operations.

Brooklyn, N. Y.—The Quartin Products Company, Inc., recently organized by Edward Quartin, 440 Brooklyn avenue, and associates, with capital of 100 shares of stock, no par value, plans operation of local plant for the manufacture of paper boxes and containers. Others interested in new company include Simon Quartin, 3100 Ocean Parkway, Brooklyn; and Abraham Quartin, 499 Crown street, Brooklyn.

Lawrence, Kan.—Lawrence Paper Manufacturing Company has developed a new type of waterproof fiberboard, and is said to be arranging for extensive production of new line, for which large orders are being received.

Roanoke, Va.—Viscose Corporation of Virginia, Roanoke, is continuing its production increase at local cellulose rayon mills, and effective August 22, has stepped up output 10 per cent, recalling about 450 workers to the mill. It is said that further increase will be made in near future. The Lewiston, Pa. mill of the company is also advancing its output and close to one-half the regular working quota of 4700 persons, will soon be engaged at the plant. Another unit of the mill is being arranged for early service.

New Castle, Del.—The Delaware Rayon Company is running on a capacity schedule at its local cellulose rayon plant, giving employment to a full working force on daily three-shift operating schedule. It is proposed to hold to this basis for an indefinite period. The company has a heavy volume of orders on hand. The plant is giving employment to about 450 persons.

Sukhum, Russia—The Soviet Russian Government, Moscow, has begun the construction of a new paper mill

in the vicinity of Sukhum on the Black Sea, in Southern Russia, to be known as the Ingursk Paper Mills. Raw material will be secured from the forests along the Black Sea, and arrangements will be made for installation of equipment for timbering and pulp production. The mill will be equipped for an initial capacity of 25,000 tons of finished paper stock per annum. Entire project is reported to cost close to $1,000,000. The Amtorg Trading Corporation, 261 Fifth avenue, New York, N. Y., is official buying agency for the Soviet Union.

Thorold, Ont.—The Ontario Paper Company, Ltd., is said to have placed orders for new paper mill equipment, totaling about $50,000, and will begin installation of the machinery at an early date.

New Companies

New York, N. Y.—The Milcord Paper Company, Inc., has been incorporated with a capital of $1,000, to deal in paper products of various kinds. The incorporators include Joseph Musolino, 2161 East 38th street, Brooklyn, and Charles Jones, 321 West 25th street, New York.

New York, N. Y.—The Kanel Paper Company, Inc., has been incorporated with a capital of 100 shares of stock, no par value, to deal in paper goods of various kinds. The incorporators are J. M. Sigman and Harry G. Frankel, 150 Broadway. Albany Service Company, 315 Broadway, is representative.

Chicago, Ill.—Printers' Paper House, Inc., 649 West 22nd street, has been incorporated with a capital of $20,000, to deal in paper stocks of all kinds. The incorporators are Robert A. Kaeger, Edward Sager and Alfred B. Clark.

Brooklyn, N. Y.—S. Englehard, Inc., has been incorporated with a capital of $10,000, to deal in paper goods of different kinds, wrapping papers, etc. Sol Englehard, 738 East Forty-eighth street, Brooklyn, N. Y., is principal incorporator.

Wilmington, Del.—The Bell Paper Box Company has been incorporated under state laws with capital of $100,000, to manufacture paper boxes and containers. The company is represented by M. M. Lucey, Wilmington, attorney.

Bloomfield, N. J.—Soda Straw Manufacturing Company has been incorporated with a capital of $125,000, to manufacture strawboard products, including cups, tubes and similar specialties. The incorporators are Allan H. King, Bloomfield; and Walter A. Coogan, Elizabeth, N. J.

Grayville, Ill.—The Wabash Box Company, Inc., has been incorporated to manufacture cardboard and other boxes and containers. The incorporators are K. J. Briswalter and Walter Kimba, Grayville. Abner Carey, Grayville, is company representative.

B. C. Pulp & Paper Co. Wins Shield

The British Columbia Pulp & Paper Company, Ltd., won the shield in the Safety contest for the year ending May 31, 1932 held annually by the pulp and paper mills in the Province of British Columbia. The results of the contest were as follows:—

1. British Columbia Pulp and Paper Company, Limited, Port Alice, B. C., one day lost in every 2077 hours worked.
2. British Columbia Pulp and Paper Company, Limited, Woodfibre, B. C., one day lost in every 670 hours worked.
3. Powell River Company, Limited, Powell River, B. C., one day lost in every 409 hours worked.
4. Pacific Mills, Limited, Ocean Falls, B. C. one day lost in every 161 hours worked.

Obituary

Gaylor Bevis

DAYTON, Ohio, August 22, 1932.—Gaylor Bevis, president of the Bevis Machine Company, well-known among paper manufacturers, died suddenly at his home, 313 South Main street, Middletown, last week.

During the business crisis, the Bevis Machine Company, by direction of its president, held steadfastly to the policy of regularity of employment for employees. That rule had been adhered to for many years and there was no deviation during the depression. Mr. Bevis contended he could enjoy a richer personal life by making happiness abound in his own industrial "family," and the result was that wheels of his plant were seldom idle during the thirty-three years he had remained at the helm.

Mr. Bevis was especially active in Masonic circles and at one time was eminent commander of Hamilton Commandery, No. 41, Knights Templar. He was also a past master of Jefferson Lodge and Past High Priest of Middletown Chapter, Royal Arch Masons.

The survivors in Mr. Bevis' immediate family are his widow; three daughters, Mrs. William A. Gibson, Mrs. Edward H. Brede, Jr., and Miss Martha Bevis; one son, Stanley; one sister, Mrs. W. B. Wells, Tacoma, Wash., and two brothers, Earl Hamilton, and Jesse, of Ann Arbor, Mich.

Byron Weston

PITTSFIELD, Mass., August 22, 1932.— Byron Weston, son of the late Franklin Weston, and grand son of Byron Weston, founder of the Byron Weston Paper Company, of Dalton, was found dead in the garage of his sister-in-law, Mrs. Melville Weston, of North Andover, Friday morning. Death was occasioned by monoxide gas.

Mr. Weston was born in Dalton and after attending Williams College was a paper salesman for a time. He leaves, besides a widow, his mother, now in Italy; three sisters, Mrs. Melville Weston, of North Andover; Mrs. Donald Hyde, of Beacon, N. Y.; and Miss Sally Weston, of New York City.

Frank E. Dunaway

Frank E. Dunaway, long a leading figure in the wood pulp trade in New York and widely known among paper manufacturers, died suddenly in his apartment at 3681 Broadway, New York, on Wednesday, August 17. Mr. Dunaway, who was 55 years of age, had been connected with several of the leading houses in the wood pulp industry and had also been in business for himself.

Box Board Plants Merge

A press dispatch from Rockford, Ill., under date of August 23, says: Merger of four paper box board and shipping case manufacturing companies into an organization comprising six plants with paid up capital of $6,500,000 and working capital of $1,500,000 was announced today by Ray Wantz, president of the Rockford Fibre Container Company. The merger will be effective September 15. Properties involved were the Keickhefer Container plants at Milwaukee and Detroit, Eddy Paper Corporation Mills at Three Rivers and White Pigeon, Mich., Quick Service Box Company, Chicago and Rockford Fibre Container Company.

Selsyn Control For Paper Machines

By F. M. Roberts[1]

The use of push button control for the operation of paper mill auxiliary equipment has simplified many of the paper making operations and has eliminated the human element in the controlling of this auxiliary equipment. The adaption of this remote control to the paper machine itself naturally followed its application to the auxiliary equipment and on many paper machines today the speed control and "draw" adjustment are accomplished by the use of push buttons. Experience in the design of paper mill control equipment proves conclusively that while it is desirable to eliminate the human element from the control of auxiliary equipment, it is equally important to retain this element in the control of the paper machine equipped with electrical sectional drives. This is particularly true of the control of "draw" where the machine tender must have definite knowledge of the speed increments or decrements which he is using.

The call for increased producing speeds in the manufacture of paper has resulted in a demand for greater simplicity in all paper making machinery. To conserve valuable space and to permit greater ease of operation of the paper machine, the machine room must be "stream lined"; all unnecessary equipment, whether electrical or mechanical must be removed from the immediate vicinity of the paper machine. As much of the regulating equipment as possible must be mounted on the control board where it properly belongs. The regulating equipment must be practical, and to be practical, it must be simple, but the modern regulator must be designed to compensate for the poorer speed regulation of shunt wound direct current motors when operating over wide speed ranges. Such compensation has never been accomplished until the recent development by the General Electric Company of the Compensated Selsyn Speed Regulator, which has been designed as part of the Selsyn Control System for paper machines, to fulfill the conditions which have been outlined.

[1] Industrial Engr. Dept., General Electric Co.

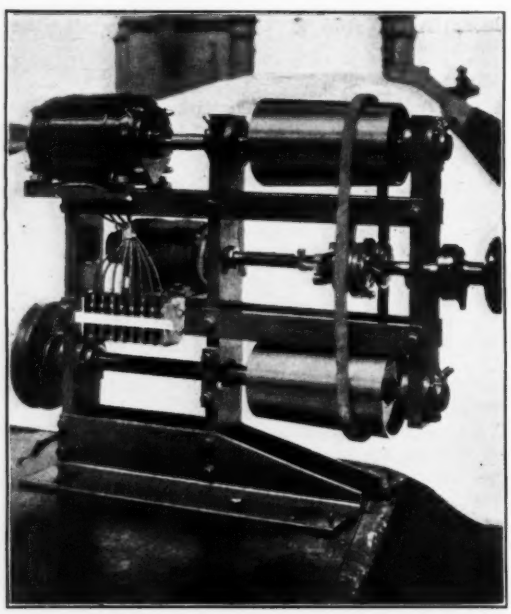

FIG. 1

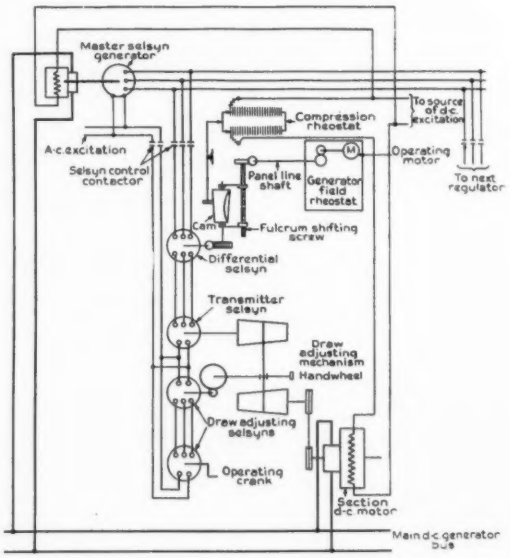

FIG. 2

"Selsyn" is the General Electric designation for Self-Synchronous Motor, and the fundamental principle of operation of two of these units is that when their stators are connected together electrically and there is AC excitation applied to the rotors of each one, the rotors of the two units are as solidly connected together as if by a line shaft. Thus, if the rotor of one Selsyn be turned by rotating its shaft, a similar mechanical movement of the other will result. Another important characteristic of a Selsyn system is that a "differential" may be introduced electrically between the transmitter and receiver. Like all differential devices, this will permit a speed difference between units to occur and will make up in actual revolutions the speed difference between the transmitter and receiver.

Before Selsyn systems could be applied to the control of paper machines, it was necessary to design special Selsyn units whose electrical and mechanical characteristics were such as to permit their use in paper mills where continuous operation in warm, damp atmospheres is to be expected. The Paper Mill Selsyns are totally enclosed and fitted with ball bearings, so that they are practically impervious to moisture and require only occasional lubrication.

The new type of speed regulator consists essentially of a Transmitter Selsyn (Fig. 1) driven from the sectional drive motor whose speed is to be maintained constant, a Master Selsyn which acts as a receiver unit for all the Transmitter Selsyns on the various sections of the paper machine and a differential unit mounted on the main control board and connected electrically between the receiver and the transmitter. An arrangement such as this permits the exclusion of all unnecessary electrical equipment from the paper machine room because the Transmitter Selsyn, driven through a pair of cone pulleys, pro-

vided to permit "draw" adjustment, is all that must be mounted beside the sectional driving motor.

The master Selsyn which acts as the receiver for all the regulators on the sectional drive is driven by a direct current motor from the same source of power as the paper machine motors and its speed varies directly with the speed of the paper machine, so that the Selsyn system always operates at a speed in direct proportion to that of the paper machine. This speed is determined by the position of the motor-operated rheostat which controls the voltage of the main direct current generator. The accompanying diagram Fig. 2 illustrates the principle of operation of this regulating system. As long as the transmitter and receiver are operating at the same speed, there is no tendency for the differential to rotate, but if the speed of the motor driving the section of the paper machine varies,

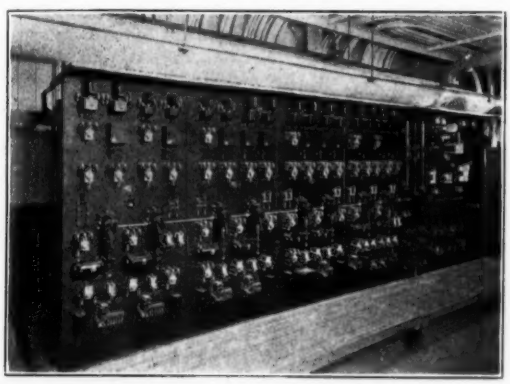

FIG. 5

the differential unit rotates, changing the pressure on the compression type motor field rheostat and thus maintaining the speed of the direct current driving motor constant, within close limits. The use of this Compression Type Motor Field Rheostat provides the regulator with an infinite number of operating points, since the rheostat consists of a series of carbon discs, enclosed in porcelain tubes and so arranged that through a suitable lever system, the pressure on these discs may be altered by the rotation of the Differential Selsyn. This construction is illustrated in Fig. 3 and Fig. 4.

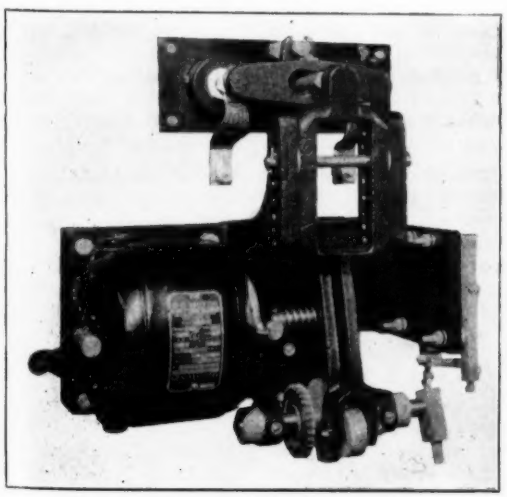

FIG. 3

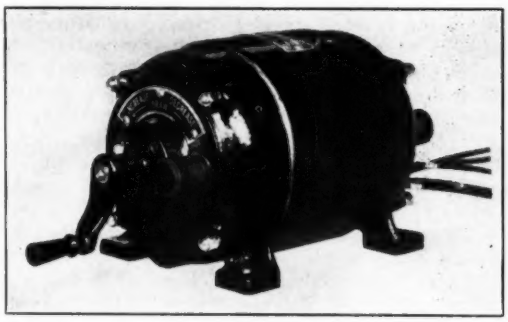

FIG. 6

It is a well known fact that the resistance of a series of carbon discs varies inversely with the pressure which is applied to them, thus the field current of the direct current driving motor may be changed by the rotation of the differential Selsyn motor and the speed of the direct current driving motor is raised or lowered accordingly.

It is an inherent characteristic of all shunt wound direct current motors that as the load increases from no load to full load, there is a decrease in speed which is nearly in proportion to the load applied. This is known as "speed regulation."

The function of the speed regulator is to vary the strength of the motor field to maintain constant speed of the sectional driving motor. As the load increases, the field is weakened, and as the load decreases the field excitation is increased.

On the majority of electrical sectional paper machine drives, the lower speeds are obtained by reducing the armature voltage applied to the direct current motors. The actual speed regulation in r.p.m. of a shunt wound direct current motor is approximately constant at any armature voltage with a paper machine load, so that at the lower paper speeds, the speed change in per cent of the operating speed of the section motor as the load builds up from no load to full load is greater than at the higher speeds; thus,

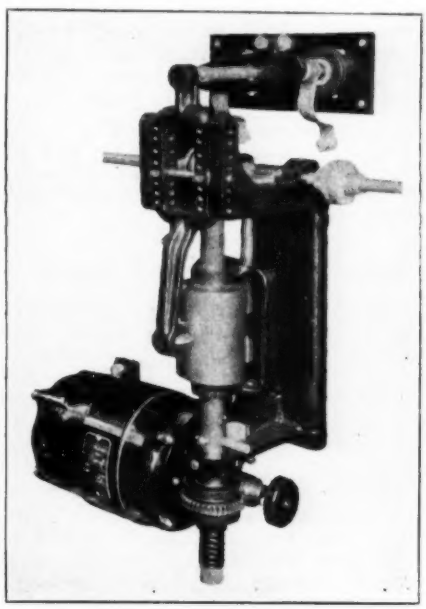

FIG. 4

a motor which has an inherent speed regulation of 2 per cent at maximum rated speed with rated armature voltage applied will have a regulation of approximately 14 per cent at one-seventh speed and with one-seventh of the maximum armature voltage applied. This inherent characteristic of all shunt wound direct current motors has been appreciated in the design of the Compensated Selsyn Speed Regulator which has been arranged to provide a response which is in inverse proportion to the paper machine speed. This result is accomplished by the introduction of a variable fulcrum in the lever mechanism which operates the compression type motor field rheostat—Fig. 4.

This fulcrum, which is in the form of a spiral cam, is so arranged that for any movement of the Differential Selsyn motor, the amount of speed adjustment is greater at low paper speeds than at high paper speeds, and in this way the regulator overcomes the inherent shortcoming of shunt wound direct current motors. The variable fulcrum or cam is moved directly by the motor-operated rheostat which determines the speed of the paper machine, through a line shaft, which is clearly shown in the accompanying photograph of a typical control panel for an Electrical Sectional Drive—Fig. 5. Thus for the first time a speed regulator is available which provides close speed regulation of the section driving motors, at any paper machine speed. This remarkable result is accomplished by a regulator which is of substantial mechanical construction, and which is exceedingly simple in operation.

In addition to the use of the Selsyns as part of the speed regulators, these devices are employed to move the belts on the transmitter cone pulleys for the adjustment of "draw" between sections. The machine tender makes the actual "draw" adjustment by turning a small hand crank—Fig. 6. This crank turns the rotor of a transmitter Selsyn which is connected electrically to a similar Receiver Unit attached to the belt shifting screw on the cone pulley mechanism of the section driving unit. In this way, each turn of the draw adjusting handwheel corresponds to a definite speed change and the association of hand crank movement and the paper machine speed change is soon realized.

The enthusiastic reception which this new Selsyn control system for electrical sectional drives has been given by the trade attests the value of the development to the mill operators. Sectional electric drives with this control system have recently been put in service in a half dozen large mills making many grades of paper.

Modern paper making requires modern control equipment designed to do the work under the mill conditions. This fact is substantiated by the number of sectional electric drives with this control system which have recently been put in service.

Information on Hard Rubber

New information on hard rubber in sheet, rod and tubing form has just been issued in a new booklet published by The B. F. Goodrich Rubber Company, Akron, Ohio.

Opening paragraph of the booklet says: "During recent years many 'substitutes for hard rubber' have appeared. So far there has been none in which are combined the many desirable properties of hard rubber itself."

Among subjects in the booklet are: "Properties of Goodrich and Defiance Hard Rubber Goods", "Resistance to Chemicals", "Machining Qualities", "Finish and Tolerances", "Possible Variations", "Suggestions for Machining", and "Weights". The booklet is furnished on request to The B. F. Goodrich Rubber Company, Akron, Ohio.

Boston Paper Trade Happenings

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., August 22, 1932.—Knowlton Bros., who operate Kamargo Mills, Watertown, N. Y., have decided to discontinue Ravenna Cover, a line which has been on the market a good many years. The stock on hand is being sold at a fraction of the original price.

The Falulah Paper Company, Fitchburg, Mass., has sent to its agents sampling kits of the complete lines of this concern, containing new colors in the lines the company has developed. The agents will in turn send out the kits to their customers.

Morgan L. Ellis & Co., Inc., now located at 301 Congress street, is to remove about September 10 to 33 Farnsworth street, where the firm will have larger quarters, with railroad siding facilities. A location regarded as the last word as far as shipping goes, it is ideally laid out for cars and trucking services.

James L. and A. Lawrence Ham, of Arthur E. Ham & Sons, went to Saugerties, N. Y., Tuesday, to attend the annual get-to-gether of the Martin Cantine Company in that place.

Nathan S. Clark, president of Knight, Allen & Clark, Inc., left Saturday for a two weeks' vacation at his summer residence, Gilmanton, N. H., where his family are staying during the summer.

J. F. Halloran, president of the Century Paper Company, has returned to his office after an absence of ten weeks, on account of illness.

N. R. Hopkins, sales manager of the Oxford Paper Company, Rumford, Me., with headquarters at the New York office, was in Boston last week, visiting Carter, Rice & Co., Corp., New England agents of the company.

Albert Hicks, of Daniel M. Hicks, Inc., N. Y., called on the local trade Wednesday.

Sylva Paperboard Co. on Full Time

SYLVA, N. C., August 22, 1932.—The Sylva Paperboard Company announces it has returned to its schedule of full time operation and that 125 employees, the plant capacity, are now at work.

Old employees of the company have been recalled to work, following a business lull of several months, during which time several machine units of the plant have been idle, or working only part time.

Officials of the company made it plain, however, that they are in no need of workers from other sections, since they plan to use unemployed persons here if any new workers should be needed later.

The plant has emptied its storage rooms and is filling orders as fast as possible. Officials said that conditions are looking brighter now and that they have enough orders ahead to keep the plant busy for several months.

In making the announcement, officials said they were happy to say that all former employees are back at work.

The return of this plant to full time operation is encouraging to the business men and other citizens of Jackson county.

The paperboard company manufactures paper that is used in making cartons for shipping.

Want Lower Rates from Holyoke

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., August 23, 1932.—The New Haven railroad has petitioned the Interstate Commerce Commission for lower rates from Holyoke to New York City. The proposed new schedule will affect "fifth class and lower" which includes paper and many paper products.

PAPER AND PAPER STOCK IMPORTS AND EXPORTS OF THE UNITED STATES

For the Month Ending June 30, and for the Six Months Ending June 30, 1931, Compared with Corresponding Month of Previous Year

IMPORTS—PAPER

		June				Six Months Ending June 30			
		1931		1932		1931		1932	
		Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
PAPER AND MANUFACTURERS		.....	$11,364,917	.....	$8,363,398	.....	$66,095,703	.....	$50,768,028
Printing paper—									
Standard news print	lbs. free	381,837,538	10,287,889	292,073,273	7,050,096	2,103,841,544	58,336,155	1,865,206,039	45,200,333
Imports from:									
Finland	lbs.	9,335,519	203,146	8,629,236	151,603	44,973,619	1,024,242	47,238,887	866,875
Germany	lbs.	3,093,278	65,267	2,307,180	42,159	21,981,870	475,244	17,078,193	318,120
Norway	lbs.	959,029	24,089	6,316,937	113,748	18,238,379	464,577	20,271,585	403,220
Sweden	lbs.	20,879,484	489,480	6,620,047	125,424	69,909,640	1,617,483	69,891,563	1,435,359
Canada	lbs.	317,420,018	8,665,160	248,575,388	6,126,425	1,826,624,129	51,437,286	1,602,501,651	39,566,982
Newfoundland and Labrador	lbs.	30,150,210	840,747	19,770,365	489,904	122,043,935	3,315,593	105,925,171	2,577,123
All other, n. e. s.	lbs. dut.	400,784	11,917	220,895	5,939	1,409,421	45,841	1,811,465	51,519
Greaseproof and waterproof papers	lbs. dut.	22,349	4,061	24,073	4,966	169,170	33,245	132,144	22,448
Kraft wrapping paper	lbs. dut.	335,823	15,797	1,053,042	31,380	1,799,943	77,842	3,031,707	95,386
Other wrapping paper	lbs. dut.	409,773	17,581	70,704	2,108	1,802,212	76,096	709,490	25,661
Writing and drawing paper	lbs. dut.	278,752	56,606	86,920	14,016	1,327,381	266,899	858,792	139,947
Writing paper and envelope combinations	dut.	.....	16,334	.....	4,095	.....	89,059	.....	40,827
Surface-coated paper	lbs. dut.	88,629	46,577	47,557	23,402	563,480	261,534	410,216	181,862
Uncoated paper, decorated or embossed	lbs. dut.	15,573	4,511	2,418	598	90,530	21,384	30,536	7,195
Tissue and similar papers—									
Weighing not over 6 pounds to the ream	lbs. dut.	99,056	69,800	98,020	42,386	746,257	528,757	634,618	301,461
Other	lbs. dut.	33,817	12,966	36,742	10,928	340,607	141,653	242,327	89,300
Paper boards, n. e. s.—									
Pulp board, in rolls	lbs. dut.	2,417,923	51,088	1,049,744	17,087	15,787,125	342,841	10,797,087	186,776
Paper board, pulp board, n. e. s., and card board	lbs. dut.	811,391	18,663	915,463	18,611	6,598,496	151,557	4,471,511	80,734
Leather board, test and wall board	lbs. dut.	162,555	5,368	60,543	7,825	812,897	39,511	592,896	54,382
Cigarette paper, books and covers	lbs. dut.	1,580,928	396,869	3,953,826	873,162	13,695,817	3,571,879	11,431,428	2,790,312
Hanging paper (wall paper)	dut.	33,004	14,685	33,232	11,668	717,109	196,617	301,402	70,157
Duplex decalcomania paper, not printed	lbs. free	22,632	5,308	4,360	657	244,663	54,744	190,217	31,390
Paper boxes	dut.	.....	87,771	.....	57,495	.....	493,926	.....	366,797
Papier-mâché and pulp manufacturers, n. e. s.	dut.	.....	35,839	.....	17,188	.....	181,644	.....	129,612
All other paper and manufacturers	dut.	.....	205,287	.....	169,791	.....	1,184,519	.....	901,929

WOOD PULP

Mechanically ground wood pulp—									
Unbleached	tons free	11,231	290,297	11,475	262,134	79,476	2,022,218	75,244	1,574,267
Bleached	tons free	833	21,735	1,176	23,235	4,632	112,292	4,854	102,266
Sulphite wood pulp—									
Unbleached	tons free	47,094	1,966,429	27,156	885,618	256,930	11,181,629	252,797	9,058,625
Imports from:									
Finland	tons	11,522	420,038	6,942	253,314	47,516	1,893,283	43,714	1,706,684
Germany	tons	1,201	50,614	3,812	122,422	6,660	299,630	21,050	706,272
Norway	tons	44	2,601	2,765	79,758	5,531	241,743	15,319	464,590
Sweden	tons	24,531	1,080,786	6,810	213,884	133,282	5,992,142	134,858	4,922,366
Canada	tons	8,288	358,481	4,833	160,131	53,931	2,360,449	32,194	1,108,074
Bleached	tons free	26,391	1,598,602	18,307	866,910	163,499	10,143,505	160,785	7,715,165
Imports from:									
Finland	tons	1,161	48,991	1,113	50,885	4,028	209,423	6,336	275,698
Germany	tons	4,250	254,181	4,535	204,712	24,810	1,530,203	25,154	1,160,782
Norway	tons	25	1,338	1,992	75,664	11,534	642,113	22,170	927,875
Sweden	tons	3,252	174,802	1,279	49,354	29,353	1,559,342	23,450	947,390
Canada	tons	17,065	1,084,517	8,704	461,581	89,518	5,972,924	76,864	4,133,529
Sulphate wood pulp—									
Unbleached (Kraft pulp)	tons free	25,915	874,377	16,499	509,858	121,092	4,734,251	173,628	5,484,316
Imports from:									
Finland	tons	5,575	187,057	5,760	182,200	16,474	514,163	26,675	880,279
Norway	tons	.....	.....	729	21,872	2,417	82,405	6,822	201,850
Sweden	tons	19,247	629,491	8,873	247,146	83,557	2,995,709	131,213	3,995,450
Canada	tons	1,093	57,829	1,137	58,640	17,997	1,122,445	7,971	377,786
Bleached	tons free	2,093	188,557	1,940	165,973	18,606	1,288,851	11,792	1,020,161
Imports from:									
Finland	tons	96	5,371	180	7,934	1,299	64,800	709	31,668
Sweden	tons	80	5,400	.....	.....	6,683	254,300	173	5,913
Canada	tons	1,867	176,106	1,760	158,039	10,456	961,421	10,613	958,430
Soda pulp	tons free	243	13,590	109	4,673	1,953	105,857	1,076	46,419
Other pulp	tons free	9	1,726	.....	.....	117	11,253	109	14,181

CRUDE PAPER STOCK

Rags for paper stock	lbs. free	9,123,880	134,767	4,047,527	59,166	62,342,206	849,773	45,458,873	596,950
All other paper stock	lbs. free	9,142,543	143,031	5,856,633	60,978	57,691,829	897,658	49,982,380	423,093

CHEMICALS AND OTHER PAPER MAKERS' MATERIALS

Colors, dyes, stains, color acids, and color bases, n. e. s.	lbs. dut.	395,025	458,666	214,174	244,349	2,432,698	2,792,090	1,869,195	2,102,183
Imports from:									
Belgium	lbs.	1,985	1,888	2,183	2,727	26,057	32,734	15,265	16,005
France	lbs.	16,358	24,250	.....	.....	65,739	101,554	1,799	1,880
Germany	lbs.	293,043	325,592	173,289	196,281	1,397,263	1,523,640	1,109,876	1,235,892
Italy	lbs.	1,747	3,578	.....	.....	13,025	14,392	2,182	2,754
Switzerland	lbs.	73,377	92,150	32,447	38,444	848,821	1,027,179	591,510	694,690
United Kingdom	lbs.	6,507	9,092	5,573	6,081	58,842	66,010	57,761	61,323
China clay or kaolin	tons dut.	11,575	96,532	5,760	28,410	67,973	599,413	49,720	255,055
Casein or lactarene	lbs. dut.	364,169	15,417	29,554	1,656	2,299,126	107,742	699,595	24,126

(Continued on page 22)

PAPER AND PAPER STOCK IMPORTS AND EXPORTS OF THE UNITED STATES

(Continued from page 21)

EXPORTS—PAPER

	June 1931 Quantity	June 1931 Value	June 1932 Quantity	June 1932 Value	Six Months Ending June 30 1931 Quantity	Six Months Ending June 30 1931 Value	Six Months Ending June 30 1932 Quantity	Six Months Ending June 30 1932 Value
PAPER AND MANUFACTURERS	.....	$1,935,747	.....	$1,380,228	.....	$12,125,865	.....	$8,534,099
Printing paper—								
News print paper....lbs.	1,312,561	44,360	1,312,420	35,611	8,551,046	289,967	7,636,497	212,039
Book paper, not coated....lbs.	2,058,641	127,554	2,217,982	114,341	9,520,716	613,313	8,326,614	443,344
Exports to:								
Europe....lbs.	26,667	2,762	90,649	7,303	178,527	15,246	120,161	11,133
Canada....lbs.	376,753	20,540	281,016	12,947	2,235,020	132,529	1,835,218	88,180
Mexico....lbs.	24,019	2,661	11,892	1,019	221,767	22,841	102,766	11,194
Cuba....lbs.	258,141	16,493	128,723	6,788	1,347,333	88,269	835,765	48,628
Argentina....lbs.	151,940	11,060	64,476	5,326	626,257	38,370	341,662	23,235
Other South America....lbs.	220,182	14,919	37,176	2,919	691,731	49,435	380,784	27,502
China, Hong Kong, and Kwantung....lbs.	167,254	8,928	765,816	34,580	1,188,634	65,986	2,547,962	106,296
Philippine Islands....lbs.	493,260	27,978	194,709	11,723	1,468,182	95,343	978,047	56,242
Australia....lbs.	168,077	9,611	73,267	3,789	706,610	39,495	263,543	15,968
New Zealand....lbs.	24,191	1,556	544,712	25,848	384,358	26,052	714,654	36,205
Cover paper....lbs.	128,465	18,861	109,592	12,208	904,949	137,784	581,724	70,199
Greaseproof and waterproof paper....lbs.	420,777	91,671	311,472	60,382	2,523,195	488,494	2,121,457	500,878
Overissue and old newspapers....lbs.	17,703,285	136,642	18,366,746	123,980	92,911,061	679,106	109,348,697	794,505
Wrapping paper....lbs.	1,925,680	132,863	1,680,038	106,817	16,139,851	874,376	9,806,965	677,502
Surface-coated paper....lbs.	466,726	45,449	450,788	39,144	3,007,420	330,374	3,550,013	372,661
Tissue and crepe paper....lbs.	310,500	44,305	273,850	47,592	1,675,203	269,244	1,614,861	256,090
Toilet paper....lbs.	670,409	60,225	687,373	61,512	3,902,361	416,255	3,165,072	290,447
Paper towels and napkins....lbs.	253,459	29,508	159,648	12,396	1,867,530	181,994	1,065,186	95,887
Boxboard (paperboard and strawboard)....lbs.	3,904,354	100,541	5,707,060	82,913	30,629,679	719,736	25,727,866	454,106
Bristols and bristol board....lbs.	96,510	8,678	76,925	5,339	976,993	99,077	925,421	63,754
Other paper board....lbs.	3,080,599	130,167	3,851,772	89,079	23,646,722	846,619	14,568,074	468,219
Sheathing and building paper....lbs.	1,612,801	50,311	766,596	16,978	9,251,599	274,656	4,176,825	109,398
Fiber insulating lath or board....sq. ft.	3,676,009	104,570	2,445,482	54,589	21,024,195	657,473	13,503,466	350,046
Wall board of paper or pulp....sq. ft.	1,706,088	47,727	417,734	11,674	10,081,847	319,476	3,850,031	109,272
Blotting paper....lbs.	202,429	21,969	53,363	6,736	1,211,038	134,863	447,954	54,915
Filing folders, index cards, and other office forms....lbs.	83,165	33,541	61,512	24,151	742,608	242,186	510,693	171,453
Papeteries (fancy writing paper)....lbs.	20,086	4,828	11,121	2,540	151,005	37,806	104,005	22,718
Other writing paper....lbs.	1,186,320	101,816	1,491,079	82,380	7,434,802	728,495	6,924,105	493,162
Paper hangings (wall paper)....rolls	113,021	11,424	25,941	3,132	1,930,014	231,561	610,840	62,733
Paper bags....lbs.	996,162	65,585	626,683	35,409	6,843,779	459,059	4,318,552	265,061
Boxes and cartons....lbs.	1,542,124	91,124	992,326	50,512	7,561,958	494,815	5,862,783	347,112
Envelopes....lbs.	121,679	17,179	101,427	12,399	888,951	134,253	597,620	84,035
Vulcanized fiber sheets, strips, rods, and tubes....lbs.	267,951	73,284	211,719	84,904	1,607,865	416,479	1,225,205	379,988
Cash-register and adding-machine paper....lbs.	872,216	69,047	584,743	38,202	3,991,200	321,687	3,399,874	237,180
Other paper and paper products	.....	272,518	.....	165,308	.....	1,726,717	.....	1,147,395
WOOD PULP AND PAPER STOCK								
Sulphite wood pulp....tons	4,247	188,261	2,154	94,339	18,878	886,940	22,975	1,082,158
Soda wood pulp....tons	71	5,019	22	960	683	49,989	621	35,692
Other wood pulp....tons	52	3,260	9	219	820	31,378	256	7,262
Rags and other paper stock....lbs.	4,915,829	56,614	9,759,793	52,318	31,062,965	346,132	38,102,115	268,886
PAPER AND PULP MILL MACHINERY								
Paper and pulp mill machinery	.....	120,893	.....	77,663	.....	758,296	.....	343,605

Files Rate Protest for I. P. Co.

[FROM OUR REGULAR CORRESPONDENT]

GLENS FALLS, N. Y., August 22, 1932.—A brief in behalf of the International Paper Company has been filed with the Interstate Commerce Commission by the Northeastern New York Traffic Association protesting the freight rates of the Delaware & Hudson on shipments in this section. A protest is made against the extra rates charged on shipments from Fort Edward and also against the higher rates from Corinth and Glens Falls than from shipping points immediately to the west, south and east on the railroad. It is also alleged in the brief that the railroad is not in need of additional revenue resulting from excessive rates and that the arbitrary charges cannot be justified in the manner attempted.

A comparison of agricultural and industrial production in the regions affected and similar producing sections in other states is outlined in the brief in an effort to show that the railroad is discriminatory. Comparisons are also made with industrial districts in New Hampshire where operating conditions are more difficult but rates are standard.

The protest contends that the arbitrary rates place paper mills in Glens Falls and neighboring places at a serious competitive disadvantage and a number of rate comparisons are made to illustrate the handicaps under which industries must do business to meet competition in contiguous territory.

New Gummed Paper Booklet

An interesting sample booklet of gummed papers has been issued by the Paper Manufacturers Company, Inc., 5th and Willow streets, Philadelphia, Pa.

Two years ago this company installed the most modern machinery available for the manufacture of high grade, perfectly flat gummed papers, and despite generally adverse business conditions it was found necessary recently to add to the equipment.

According to F. A. O'Neill, president, the plant now embodies the accumulated knowledge and experience of European and American manufacturers, covering a period of over 100 years, and no expense has been spared to make possible the production of the highest quality flat gummed papers.

The sample booklet presents in an attractive manner specimens of the following flat gummed papers: super bond, super blue-white, M.F. white, glassine, M.F. Canary, brown kraft and grey kraft—all in various weights, some with animal gumming and some with dextrine gumming.

These samples, it is stated in a foreword, are offered as suggestions only, and by no means represent the entire line. The company, in fact, makes gummed papers for almost any conceivable purpose.

Copies of the booklet, with prices, may be obtained from the company.

"18 months without grinding!... 12 years of service!...

$1724.48 SAVED *by this* TENSILASTIC RUBBER ROLL"

MORE BANKER PROOF EVIDENCE
No. 12 of a series of actual mill reports. Watch for the rest.

The scene shifts to the mid-west, to a Minnesota mill* making news, book and manila. A Tensilastic Rubber Press Roll was installed on the third press of the news machine one December day. In July, *one-and-a-half years later*, that Tensilastic was still running, at 900 to 950 f. p. m.,—*without having been lifted from the journals!*

Eighteen months of steady service without grinding,—while the best record on competitive rolls in this position had been six months. The roll is still going strong, with every indication, on the basis of past performance, that the original cover will round out twelve years of service.

Every day of prolonged service between grindings, every month of extended roll life, every avoided interruption in production, every saving in time and effort within the mill and in transporting rolls back and forth means that much MORE CASH in the mill's bank account.

These savings are available to *every* mill using rubber rolls. And they're worth while. See how they count up.

ORDINARY RUBBER PRESS ROLLS	
3 replacements at $544	$1632.00
Interest, $1632 at 6% (mean of 6 years)	587.52
Grinding every 6 months at $20	480.00
Interest, $480 at 6% (mean of 6 years)	172.80
Total cost, purchase and maintenance	$2872.32

TENSILASTIC RUBBER PRESS ROLL	
1 roll at $544	$544.00
Interest, $544 at 6%	391.68
Grinding every 18 months at $20	156.00
Interest, $156 at 6% (mean of 6 years)	56.16
Total cost, purchase and maintenance	$1147.84

Clear "Banker Proof" savings of $1724.48 effected by simply changing to TENSILASTICS.

A Tensilastic's first cost is on a par with that of ordinary rolls. It's in service that the savings show. As press rolls, table rolls, felt rolls, breast rolls, couch rolls, wire stretch and carrier rolls, Tensilastics have a way of delivering a lot more service than ordinary rolls. The Tensilastic process makes them super-resistant to wear, oxidation, corrugation, distortion, density changes and the effects of chemicals and time.

Try TENSILASTICS on *your* machines,—a single roll or a complete installation. They'll tell you their own story of "Banker Proof" savings,—convincingly.

*Name on request.

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TENSILASTIC RUBBER ROLLS

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COMING EVENTS

Technical Association of the Pulp and Paper Industry, Fall Meeting, Nonotuck Hotel, Holyoke, Mass., September 14, 15 and 16, 1932.

A PLAN TO BROADEN THE USE OF TRADE ACCEPTANCES

Because of the many benefits likely to accrue to business through the free use of trade acceptances, a number of the foremost business concerns throughout the country are recommending the adoption of such settlements when and where payment is tendered on the net term basis.

In supporting this plan, President du Pont of E. I. du Pont de Nemours & Co. believes that it will assist legitimate business to obtain much needed credit from the banks, that it will increase bank deposits and that it will serve as a means of expanding the Federal Banks' outstanding credit, all of which should tend to stimulate business, stop further deflation and accelerate the return of normal conditions.

In urging the use of this plan to make available immediately to industry the credit facilities of the Federal Reserve Banks by the general use of trade acceptances, it is stated that the decline in prices will be stopped and an improvement in prices and business will result if properly safe-guarded credit can be extended to business.

The purchase of government bonds by the Federal Reserve Banks is making credit available in the banks of the nation. The banking institutions would pass on this credit to industry and commerce, if in doing so they could be assured of the maintenance of the liquidity they now enjoy.

There is a scarcity of discountable commercial paper in the market in which the banks may employ their funds.

The general use of trade acceptances would supply the banking institutions with desirable commercial paper for investment of their present surplus funds and makes available to industry and commerce needed credit.

To this end those adopting this plan agree to make a practice of taking short-term trade acceptances from their responsible customers in payment for goods sold and of giving trade acceptances in payment for goods bought. Such trade acceptances as they receive they propose to discount at banks or to sell to banks through note brokers. They urge banks receiving trade acceptances to make a practice of rediscounting them with the Federal Reserve Banks. By this means the banks are again placed in funds to make further extension of credit to industry.

The trade acceptance is simply a time draft drawn by the seller upon the purchaser of goods, and customarily sent by the seller to the buyer, accompanying the invoice for the goods. The buyer signs the trade acceptance across the face, with the date and place of payment as indicated in the form, and returns it at once to the seller who is then in possession of a desirable form of two-name commercial paper, with a definite maturity date, eligible for rediscount at the Federal Reserve Banks, if maturing within ninety days. The buyer may take the initiative by filling in an acceptance form and signing it across the face of the instrument as acceptor and then forwarding it to the seller.

Federal Reserve Banks have always been ready to rediscount good trade acceptances. They are permitted to buy and hold trade acceptances against currency issue. The Federal Reserve System is in urgent need of additional volume of true commercial paper of which the trade acceptance is the best representative. These trade acceptances created in large volume will rapidly find their way to the Federal Reserve Banks either through a member bank which will discount them or through open acceptance markets.

These trade acceptances will give the banks, in their process of accommodating customers, paper in which they will have the maximum confidence because they will be able to convert such trade acceptances into cash quickly by rediscounting at the Federal Reserve Banks.

The trade acceptance affords a means for business concerns to put their business on practically a cash basis. Although trade acceptances may be dated for payment for as long a period as ninety days, they are virtually cash in the hands of the seller through sale to the banks or in the open market. The seller thus gains the use of funds which would otherwise be tied up in open book accounts.

An immense stimulus to business in all parts of the country would be given if there were an expression of intention on the part of business houses generally to put all their buying and selling transactions on the trade acceptance basis. There would be thus applied a ready means of opening the great credit facilities of the Federal Reserve Banks to business houses both large and small wherever located.

TO SALVAGE WOOD WASTE

If the annual waste in New York State forest and woodworking industries were converted into lumber it would aggregate approximately 100,000,000 board feet

sufficient to make a solid train 55 miles in length, says George W. Sisson, Jr., Potsdam, N. Y., who is chairman of a joint committee representing the National Committee on Wood Utilization of the Department of Commerce and a group of New York officials and business men. This body has just completed a survey on the wood-waste problem of the state.

The Committee's report gives detailed information concerning the character of this waste, where it occurs, and the quantities available in each locality. Much of this material, according to Mr. Sisson, is not even used for fuel, but if intelligently handled it could be utilized as raw material for industries now depending on standing trees.

New York State has embarked upon one of the most ambitious reforestation programs of any state in the Union. The success of this undertaking is dependent to a large extent upon intelligent utilization of tree products, and for this reason the report on wood waste is of great importance as a means toward an orderly development of permanent forest industries in the state.

The National Committee on Wood Utilization is a cooperative undertaking between industry and the Government, working for better methods of converting wood and the improvement of wood-using methods. It is now engaged in a nation-wide survey of wood waste by states, and can already point to many definite accomplishments in the salvaging of wood waste as a profitable business, carried out as a result of its recommendations.

Besides Mr. Sisson, other members of the committee conducting the survey are C. P. Setter, Cattaraugus; Ralph Taylor, Jamestown; Major H. S. Bennion, W. F. Bancker, and olonel A. C. Goodyear, New York City.

An advisory committee cooperating in the study comprises William G. Howard, Albany; George A. Lawyer, Buffalo; George N. Ostrander, Saratoga Springs; N. C. Brown, Syracuse; A. B. Recknagel, Ithaca, and Peter G. Ten Eyck, Albany.

American Writing Reports Increase

HOLYOKE, Mass., August 23, 1932.—Sidney L. Willson today announced an increase of 10 per cent in business in August over last July. His statement follows:

Reports from our branch offices in New York, Chicago, Philadelphia, St. Louis and San Francisco indicate an improved mental attitude toward business. The records at Holyoke show an increase in orders in August as compared with July over ten per cent.

The opinions expressed by bankers in New York were, that it was considered the general belief that we had actually turned the corner, and that the present business improvement would be continuous.

While during the past two or three years we have seen little business flurries, only to be followed by further recessions, there has never seemed to be the sincere belief back of the continuous improvement idea that is manifest today.

An evidence of greater business activity is indicated by the greater number of inquiries we have for our products; also the greater activity on the part of merchants in ordering additional stock. This really establishes a business confidence in the future greater than we have seen for a long time.

S. L. Willson Returns from Europe

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., August 23, 1932.—On his return last week from Europe Sidney L. Willson, president of the American Writing Paper Company, Inc., gave out this statement:

A rapid traveler has little opportunity of gauging conditions unless the collection of facts relating to business conditions prompted the trip. In the larger cities visited —Paris—Brussels—Amsterdam and London, a traveler is impressed with the activity shown, just as a hurried trip to New York City would impress you. A few inquiries, however, brings to light the fact that business conditions, the world over, are pretty much the same. Unemployment in large numbers prevails in all countries—and those having employment are poorly paid, but living costs are very low as compared with prices in the United States.

In England it is reported that conditions are better and I was told that a resumption of the Gold Standard was a long way off; that the country was getting real benefit from the adoption of depreciated currency and business enterprises felt it would be a mistake to go back to a standardized monetary unit.

There seemed to be a feeling that business conditions in Europe are improving—and that indications of improvement in the United States were evident and that the mental attitude of industry abroad was being moulded and influenced by that belief.

I was glad to have confirmed upon my return, that a better feeling regarding the immediate future for business in this country prevails, with the belief everywhere expressed that actual improvement will be in evidence early in September, and with thoughts of our future, the words of George Washington occurred to me:

"The game is yet in our own hands; to play it well is all we have to do. Nothing but harmony, honesty, industry and frugality are necessity to make us a great and happy people."

Sues Interstate Folding Box Co.

DAYTON, Ohio, August 22, 1932.—Edwin P. Woodle, Cleveland attorney, has sued the Interstate Folding Box Company of Middletown for $10,000, alleging the company's failure to adhere to a contract delayed his career and marriage and brought illness to his fiancee.

Woodle in his petition, which was filed in Cincinnati, said that he had given up his law practice to take a position with the box company in January. He was dismissed by the firm three weeks before his marriage was to have taken place in June, he asserted.

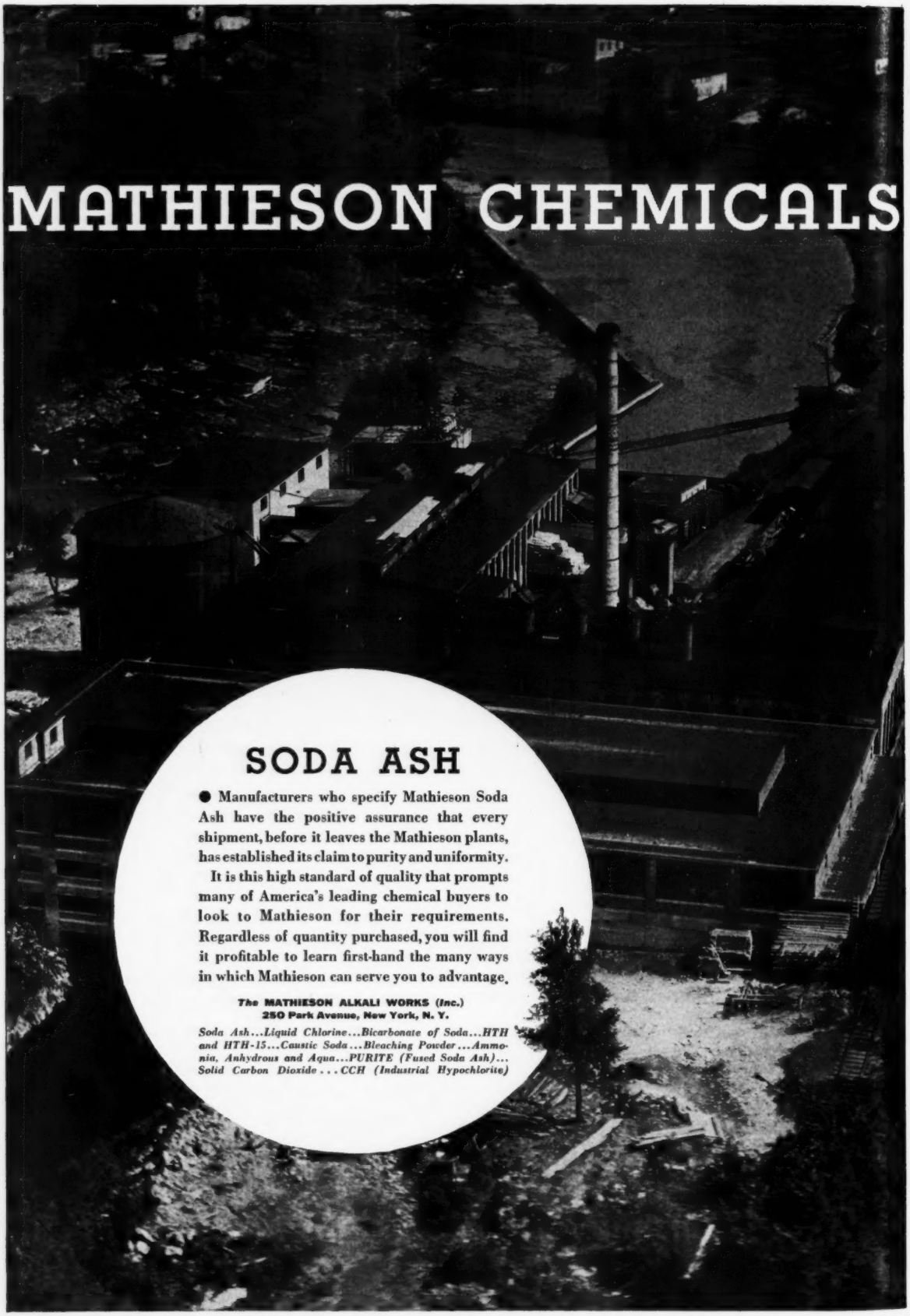
The suit is regarded as one of the most unusual ever filed in this vicinity, considering the nature of the allegations.

Paper Firms Insure Employees

Two organizations engaged in the paper trade have recently taken out with the Prudential Insurance Company of America group life policies for the protection of their employees.

They are the Avery Paper Corporation, of Avery, Ohio, acquiring a policy for $81,500, covering 73 lives, and the Blum Folding Paper Box Company, Inc., of Brooklyn, $79,000 for 65 workers.

In both cases the employees are insured in amounts ranging from $1,000 to $2,500, according to rank, and the premium payments will be shared by the employees and the employing companies, the policies being of the contributory type.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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

The Patent Office*

The primary function of the Patent Office is to issue patents to inventors in order to enable them to protect themselves in the exclusive enjoyment of their inventions and discoveries. It has the additional duty of registering trade-marks used in interstate and foreign commerce as well as prints and labels used in commerce.

The work of examining applications for patents is divided among sixty-five technical divisions, each one of which has jurisdiction over a group of more or less related arts. These divisions collectively cover all phases of the arts and sciences from the simplest form of a device, such as a paper fastener or clip, to the most complicated electrical and automatic machines, or the most complicated chemical compounds and processes. One of these divisions also handles applications for design patents. Each of the divisions is in charge of a primary or principal examiner, who is assisted by from six to ten assistant examiners and one associate examiner. The actual examination of the applications is usually performed by one of the associate or assistant examiners whose findings are subject to the approval of the primary examiner who is his immediate superior. Applicants who are dissatisfied with the findings of the patent examiners may appeal directly to the Board of Appeals and in some instances to the supervisory authority of the Commissioner.

The Board of Appeals consists of the Commissioner of Patents, the three assistant commissioners and nine examiners-in-chief. At least three members of the Board sit upon each case. The proceedings are formal and conclude with a written decision sustaining, reversing or modifying the decision appealed from. Adverse decisions of the Board may be appealed from by applicants to the Courts.

Proceedings upon applications for the registration of trade-marks, prints and labels are entirely separate from proceedings in patent cases, being governed by a special code of laws and regulations. The work is handled by the Trade-Mark Division which receives and acts upon all such applications. The examiner in charge assisted by associate and assistant examiners determines registrability in each case, subject to appeal first to the Commissioner and then to the Court of Customs and Patent Appeals.

In addition to the examining divisions, the organization of the Patent Office includes the following departments each termed a division:—

The Mails and Files Division which receives and records the daily mail and distributes it to the proper divisions or officials.

The Financial Division which receives and accounts for fees, sells coupons receivable in payment for copies of patents and for other minor services desired by applicants and attorneys, and keeps the appropriation and money accounts of the Patent Office. The fees collected by the Patent Office now amount to about $4,500,000.00 annually.

The Application Division which inspects all applications for patents as they are received to see that they are complete and in due form, prepares them for attention by the examining divisions, distributes them to the proper divisions, and conducts necessary correspondence with applicants regarding matters of form.

The Classification Division whose function it is to classify patents properly, to revise the classification from time to time, to keep up with the progress of the arts and sciences, and to see that each patent as it issues is properly classified and properly cross-referenced or cross-indexed in other classes in which it would be useful.

The Interference Division which decides questions of priority arising when two or more rival applicants claim the same patentable or registrable subject matter. The patent branch of the division handles patent matters and the trade-mark branch takes charge of the trade-mark matters. Decisions in patent interferences may be appealed to the Board of Appeals and then to the Courts, while decisions in trade-mark matters are reviewable first by the Commissioner and then by the Courts.

The Drafting Division which inspects the drawings which are filed with applications that require illustration to see that they are suitable for reproduction. Upon the applicant's request, the draftsmen alter or correct drawings to secure conformity with the office rules or the requirements of the examiners, and when necessary make new drawings. With certain minor exceptions, the cost of the work done by the Drafting Division is collected from the applicants.

The Manuscript Division which furnishes copies of official papers, including patents and trade-marks, applications, and other similar records, as may be requested by attorneys and applicants for use in the preparation of applications or in patent litigation. Copies are made in several ways, according to the requirements of particular cases. When typewritten or photostat copies will suffice, they are produced in the Division. When photo-

* Contributed as Bulletin 14 of the Patents Committee of the Technical Association of the Pulp and Paper Industry, C. W. Rivise, chairman. The subject matter of this bulletin with the exception of the last three sentences is based in part upon an article by Honorable Thomas E. Robertson, Commissioner of Patents, which was recently published in the United States Daily.

lithographic work is necessary, it is done by private contractors under the supervision of the Division. Copies of papers may for an additional nominal fee be certified over the signature of the Commissioner and under the seal of the Patent Office.

The Assignment Division which receives and records all deeds or assignments transferring property rights in patents or trade-marks or applications therefor. Instruments affecting the title to patents and trade-marks are being constantly received, recorded, and returned to the owners, about 55,000 being handled each year. For a moderate fee, the records are searched and abstracts of title furnished. To facilitate searching, assignments of patents and trade-marks, or applications therefor, are digested and carefully indexed. Before any patent or trade-mark certificate is issued, ownership is always determined in order to insure that the papers will issue to the owner of record.

The Issue and Gazette Division which acts as the publication agency of the Patent Office. It prepares the specifications and drawings of patents for printing, in connection with the issue of the grants to the applicants. Patents and trade-mark certificates are issued each Tuesday, the number averaging about 1,200 weekly. The patents and trade-marks included in each week's issue are published in the Official Gazette, a weekly publication containing about 250 quarto pages and 1200 illustrations. One hundred copies of each patent with specifications, claims and drawings, and 60 copies of each trade-mark certificate are printed for sale, exchange with foreign governments, and deposit with libraries throughout the country. The annual cost of printing the Official Gazette and the patent and trade-mark certificates amounts to over $1,000,000.00.

The Publication Division which has charge of the sale and distribution of copies of United States patents and trade-mark certificates, these being obtainable from the Patent Office at ten cents each. Copies of all existing United States patents and trade-marks numbering close to 2,000,000 are kept in stock. The number of copies in stock is about 80,000,000 occupying some forty miles of shelving. About 7,000,000 copies are distributed yearly, about 4,000,000 being sold, more than 1,000,000 going to other countries in exchange for copies of foreign patents, and about 750,000 being placed in reference libraries.

The Patent Office also includes a scientific library, a law library and a search room, which are for the use of the officials of the Patent Office and the public. The scientific library contains complete sets of foreign patents, some 3,000,000 in number, about 17,000 bound volumes of periodicals devoted to science and technology, including the journals of foreign patent offices, and about 25,000 scientific and technical books in various languages. The search room contains copies of all United States patents and trade-marks, arranged in classified order and conveniently indexed. Inventors and attorneys come to Washington from all parts of the country to make searches in this room, since it is the only place in the United States where all our patents may be found in classified order.

The Commissioner is the chief administrative officer of the Patent Office. In addition, he performs important judicial functions which he shares with the three assistant commissioners. The decisions of the assistant commissioners, although rendered in their own names, have the same force and effect as those of the Commissioner. It has been stated, the Commissioner and the assistant commissioners together with the nine examiners-in-chief constitute the Board of Appeals which considers appeals in patent cases. The Commissioner is represented in the Courts by the Patent Office solicitor. The three law examiners assist the Commissioner and the solicitor generally in the performance of their legal and judicial duties and advise them in particular cases. The Commissioner is assisted in his duty of supervising the work of the individual patent examiners by four supervisory examiners who periodically scrutinize the official actions of the various examiners to see to it that they reach and maintain a high uniform standard of quality.

The personnel of the office numbers about 1,430, half of which force is engaged in technical work and the other half in clerical work. Virtually the entire technical staff are college graduates and a large proportion of them hold degrees in both law and science. Collectively they are skilled in practically every art and science known to mankind. All but the Commissioner must pass the most rigorous examination given under the auspices of the Civil Service Commission, an examination in which seldom more than twenty-five per cent of the candidates pass. The higher positions are almost invariably filled by promotion from the ranks. The Commissioner is the only political appointee in the Patent Office, but as a general rule he is selected from a list of experienced patent practitioners. The present Commissioner, Honorable Thomas E. Robertson, has served continuously since 1922 and has had a background of more than thirty years of active practice before the Patent Office. Many notable reforms have been inaugurated during his incumbency and many more are being contemplated.

Correction

On pages 27 and 28, PAPER TRADE JOURNAL, July 21, 1932, the titles of the articles should be exchanged.

In W. N. Kelly's article, "Process Improvements and Controls in Sulphite Cooking Practice," in the last paragraph on page 28, beginning on the seventh line from the bottom, should read:

"The combined sulphur dioxide in the raw acid is thus diluted from approximately 1.75 per cent to 1.25 per cent. Under these circumstances, the effect of a few inches of liquor, more or less relieved from a digester can cause considerable variation in the finished acid, particularly in mills where the storage provided for finished acid is limited."

TAPPI Use Requirements Committee

The Executive Committee of the Technical Association of the Pulp and Paper Industry has redefined the field of activity of the Use Requirements Committee of the Research and Development Division.

The purpose of this committee shall be to determine the essential requirements of use for all grades of paper and paperboard, to classify these on the basis of use, to relate use requirements to properties and to establish specifications.

Parker K. Baird of the Pulp and Paper Section of the Forest Products Laboratory, is chairman of the TAPPI Use Requirements Committee.

Finds News Print Rates Not Unreasonable

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 24, 1932.—An Examiner of the Interstate Commerce Commission has presented a proposed report to the Commission in the case of the Kalamazoo Stationery Company against the Baltimore & Ohio Chicago Terminal Railroad. He found that the rate on news print paper, in rolls, in carloads, from Chicago to Kalamazoo, Mich., is not unreasonable and he recommends that the complaint be dismissed.

A Physical Theory of the Beating Process*

By W. Boyd Campbell[1]

Summary

Since the actual hydration of cellulose is not changed during beating and no other chemical changes have been shown to take place, the process must be assumed to be a purely physical one. In this article an attempt has been made to account for the characteristic changes which take place in beating and which are generally termed "hydration" by assuming that these are all due to the physical action of fibrillation, either external or internal. Explanations on this basis have been made to account for slowness, greasy feel, and water holding character, for shrinkage and increased density of the dried sheet, for increased tensile and lowered tear strength, for increased transparency and for increased depth of color on dyeing.

In short the hypothesis is that the bonding of fibers in a sheet is due to the beating causing a greater facility of contact between fiber and fiber which, being drawn into contact by surface tension effects, unite by their mutual molecular attraction or crystallizing forces.

Effect of Beating on Pulp

It is as true today as it was in the days when all papers were made from rag, that paper is "made in the beater." In these days the beater often appears in forms far different from the ancient hollander used for the preparation of rags but in all papermaking there is some machine or process which, by its effect on the pulp, substitutes in whole or in part for the mysterious action of the beater in preparing pulp for the final operation of papermaking. Such machines as jordans, refiners, hydrators, stock-makers, rod-mills and the like are obviously intended to do work similar to that done by the beater, presumably to some advantage. Less obvious is the work of the grinder but even here it requires only a moment's thought to realize that the difference between a slow groundwood and a free is the difference between a beaten and an unbeaten stock. It is this undefined but important effect which will be referred to in considering the action of beating on pulp. Incidental uses of the beater such as the shredding of laps, the mixing of pulps, the providing of a convenient place for coloring and sizing reactions will be left out of consideration.

In the days before the chemist entered the paper mill the beater man was the key man of the industry. The preparation of rag stock for paper was a high art and called for years of experience. The increasing use of wood pulps and the advent of control methods which standardized operations, diminished the glory of the beater man; but even yet the preparation of stock for paper remains an art of which the scientific principles are only now beginning to be understood. In the light of researches of the last few years it seems necessary to confess that the chemist has been responsible for creating one false idea with regard to the beating process. The old time beaterman "cut" his stock if the fiber seemed longer than he wanted it and he "brushed it out" or "slowed up" his stock if he wanted to make a harder sheet. Such a term as hydration was not known to him. That was introduced by the chemist who felt the need of something more than a physical interpretation of the striking alteration produced. The slimy feel of the pulp, its reluctance to part with its water and the increased tendency to dry to a hard, horny and nearly homogeneous mass suggested to the chemist that there had been produced something akin to a glue or a mucilage which could bind together the unchanged cellulose fibers. It was natural to assume that such mucilage must be formed by the union of cellulose and water for these were the only possible components. So the beating was assumed to bring about the production of this material by the hydration of some of the cellulose. An equally natural step was to refer to pulp in this condition as "hydrated pulp." As in many other instances putting a name to the phenomenon obscured the fact that it was still as far from explanation as ever. In this case even further away because the term hydration has a fairly definite chemical meaning and present evidence is to the effect that beating does not cause any change in the degree of hydration of pulp if we are to attach to the term any of its usual meanings. Cellulose pulps do ordinarily contain water of hydration but beating does not affect the amount of this water.

Before going further it may be well to clarify the meaning of the term "hydration" to some extent. When this word is used without quotation marks in what follows, it will be used in the ordinary chemical sense of implying a binding or holding of water in intimate association with cellulose. The phrase "intimate association" is important. Water which is in its normal condition but happens to be held in its position in space by cellulose cannot be considered as water of hydration. Water might be held in various ways and still remain normal water. It might, for instance, be held inside a paper bag or be hanging as a drop on the end of a fiber, or be held in a capillary passage or tube with cellulose walls. Something of a more intimate connection between cellulose and water must be shown before the combination can be spoken of as hydration; the water must be held in some such way that its normal properties are changed.

There is plenty of evidence that cellulose can and generally does hold some water in a way to satisfy such a conception of hydration. The strong attraction of cellulose for water is one evidence of this. In an atmosphere of, say, fifty per cent relative humidity cellulose will attract and hold upwards of five per cent of its own weight of water. Much of this is normal water held in narrow capillaries and having reduced vapor pressure in consequence of the concave surfaces which go with that condition. Such is not water of hydration. But, there must have been an attraction to bring the water into the capillary in the first place and so form the first surface. This first layer of water molecules is held by some attractive force between cellulose and water and so falls within the definition above. It does not form a part of the crystal structure of the cellulose and is therefore not part of a definite hydrate like the water in such a crystal as $CaSO_4 2H_2O$. But it is strongly bound to the surface layer of cellulose and so may be said to hydrate that surface. That some part of the water on wet cellulose is in an abnormal condition may be seen in the results of determinations of specific volume. When the specific volume of cellulose is determined by displacement of helium it is

* To be presented at the fall meeting of the Technical Association of the Pulp and Paper Industry, Holyoke, Mass., September 14-16, 1932.
A contribution from the Pulp and Paper Division, Forest Products Laboratories of Canada, Montreal, P. Q.
Contribution of TAPPI Fundamental Research Committee.
[1] Member TAPPI, research chemist, Forest Products Laboratories of Canada, Montreal, P. Q.

0.642. Since the atom of helium is small enough to go anywhere a foreign atom might go and since experiments indicate it is not absorbed by cellulose at the temperatures used, it is safe to consider this value, 0.642, as the true specific volume of dry cellulose. But when the same determination is made by measuring the displacement in water the specific volume turns out to be only 0.622. Evidently there has been enough attraction or combination to cause a volume contraction of 0.020 cubic centimeters per gram of cellulose. Water entering into this combination may be considered to be causing hydration of the cellulose. Since similar phenomena are found in the case of charcoal and other inert absorbents it is likely that only a surface reaction is involved rather than the production of a definite cellulose hydrate. This view is supported by the fact that although the fiber is swollen, the crystal lattice is not, indicating that the water has gone between the crystals and not into them.

If the degree of hydration of a pulp is changed by beating or otherwise then there must be a change in the condition of some of the water associated with the cellulose. The pressure of water vapor over a sample of pulp depends on the amount of water contained in the pulp and on the way in which that water is held. The equilibrium pressure will depend on the curvature of the surface of the normal water in the capillaries, that is on water which is in a normal condition. Water closely associated with cellulose, or water of hydration, is not in the normal condition. By definition it is bound to the cellulose and hence has a lower vapor pressure than normal water. Consequently if we take two samples of cellulose which are identical except in degree of hydration then, at the same moisture content, the more hydrated sample *must* have a lower vapor pressure. If the vapor pressure is the same over the two samples then the water in them must be in the same condition of freedom and they are hydrated to the same degree. Such is the case with samples of pulp taken before and after beating. At equal moisture content, reached in the same manner, the vapor pressure is the same in both. The qualification that the moisture content must be reached in the same manner in the two samples is necessary because cellulose does not reach the same condition of hydration from a dry condition as it does from a wet. In order to avoid any irreversible effects of drying, the measurements must be made in each case as the samples first lose moisture. Since the two samples attain the same equilibrium values it must follow that the beating has caused no change in the degree of hydration. It is to be noted that it is the equilibrium value which is the same. The time taken to reach that equilibrium may be quite different in the two cases.

Having reached the stage where we can say with assurance that cellulose is normally hydrated but that beating causes no change in the degree of such hydration we are then left with the duty of explaining the very evident effects on pulp which are brought about by beating. We can no longer hide behind the vague term "hydration" but must reach some plausible explanation based on physical alterations. As a start let us list the changes to be accounted for, omitting the obvious one of cutting the fibers shorter since this does not conduce to the condition called "hydration."

Beaten pulp:

1. Has increased fibrillation.
2. Has a slimy or greasy feel while wet.
3. Has low freeness and holds much water.
4. Shrinks greatly on drying and produces high density paper.
5. Produces a sheet with higher tensile but lower tear strength.
6. Produces paper of greater transparency.
7. Requires less dye to produce the same color.

Since the increased fibrillation is the only obvious physical change in the pulp it seems reasonable to see if the other changes can be accounted for by this alone. It cannot be expected that we will be able to prove quantitatively that fibrillation is responsible for all the other changes. Qualitative or semi-quantitative evidence is all that can be expected.

The change in the feel of the pulp as it is progressively fibrillated is one which would be expected. All materials become more soft and greasy to the touch as they are ground to smaller sized particles and we naturally must expect that cellulose fibers will be no exception.

Water Holding

Beaten pulp holds water strongly and is of low freeness. It is perhaps this characteristic more than any other which has led to the idea of its being "hydrated." The freeness of a pulp is measured by the readiness with which it permits the flow of water through it when laid down as a deposit or sheet on the wire of a paper machine or freeness tester. The water must penetrate through the fine capillary passages left between the fibers. In such passage it is subjected to the laws of capillary or viscous flow, the resistance being inversely proportional to the fourth power of the capillary diameter and directly to the capillary length. Reduction of the comparatively coarse fibers to fine fibrillæ will naturally decrease the average diameter of the passages and greatly increase the resistance. The cutting of the fibers will allow of closer packing and also increase the resistance.

There are, therefore, at least two different factors working to decrease the freeness of beaten pulp and we may have different characters in pulp of the same freeness depending on the relative effects of these two factors of fiber length and of fibrillation.

The water holding characteristic of pulp as shown when on the paper machine wire is only a slightly more complicated case involving mainly the same factors. At all dilutions below some critical one which depends on the fiber length, pulp suspensions exhibit characteristics of structure. This structure is set up as soon as the fibers are close enough to come into contact with each other and remain so with an appreciable tenacity. Such structures are readily noticed in dilute stock flowing on to the paper machine wire and are responsible for the clotted or curdled appearance of the stock. At this dilution the structures are so weak that even slight agitation will break them up but they reform promptly as soon as agitation is stopped. At greater concentrations the structures have more strength and at the same time less tendency to fuse into one another, so that a more powerful agitation is needed to prevent the clots showing up as wild formation. Eventually a concentration is reached where the structure is of such strength that it will resist further concentration by simple drainage of water from it. A balance is set up between the rigidity of the structure tending to maintain the bulk and the pressure of the water (perhaps assisted by vacuum) which tends to reduce the bulk as the water escapes. The water holding power of the pulp will depend on the volume of the structure at this equilibrium condition. Fibrillation probably will increase the dilution at which structures form while cutting will decrease the dilution. But because the fibrillated stock is made of much more slender and flexible particles it will be more easily deformed. At moderate pressures, then, it is difficult to

predict which will hold most water. If the pressure is increased to the range where the sheet is heavily compacted however, another condition enters. Some water will be held on every surface, whether of crystal, fibril or fiber. The great bulk of this will be on the external, macroscopic surfaces and the volume of this water will constitute the volume of the inter fibrous space. The greater external surface caused by fibrillating the pulp will increase the number of spaces and since these will, individually, be of nearly the same volume whether the pulp is beaten or not, the total volume of water space may be expected to be greater in the case of the fibrillated pulp. Strachan[2] found that at pressures below about ten pounds per square inch, stock beaten "wet" held less water than free but that the position was the reversed at higher pressures.

The above considerations apply to equilibrium conditions where the water removal has come to a stop. Papermakers are more interested in the amount of water which will be removed in the limited time the stock is on the wire. Here the resistance to the passage of the water through the stock (freeness) comes prominently into play. The fibrillated stock will present resistance to such flow even when bulk is considerable and cause slow drainage. In the limited available time less water will be removed so that the sheet will work "wet." It is this "Wetness" which most affects the operating conditions and is confused with "hydration."

Shrinkage

Pulp beaten "wet" produces paper of greater density than "free" or unbeaten stock. During the drying some force must operate to cause the mass to contract. The contraction consists in the diminution of the air spaces in the sheet and not a contraction of the cellulose itself since

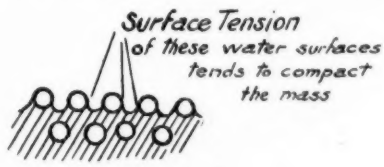

FIG. 1

the true density shows no change. The force must operate then in such a way as to bring the fibers closer together. To some degree the surface tension of the water filling the whole mass will furnish a compacting pressure. An obvious case of this may be seen if one wets a loose mass of absorbent cotton. It is immediately drawn up into smaller volume by the surface tension of the water. If this wetted cotton is now submerged in water the mass will expand again because the surface wherein was generated the compressive force has been destroyed. This force acts on the fiber mass or sheet as a compression because there are set up on the surplace of the sheet a large number of concave menisci which may be illustrated diagrammatically as in Fig. I.

The tension of the water surface on each side of each fiber lying in the surface tends to pull that fiber inside the water surface with a force of about 75 dynes per centimeter length of meniscus or about 0.15 grams per centimeter of fiber in the surface. Supposing that we have a number of fibers of diameter 3×10^{-3} centimeters lying parallel to each other on the surface with spaces between equal to a fiber diameter, there would be a total of about 166 centimeters of fiber length in each square centimeter of surface. Surface tension would cause an inward pull on these fibers of $166 \times 0.15 = 24.9$ grams distributed over the square centimeter,—equivalent to a pressure of slightly less than ten inches of water. If, due to fibrillation, the average fiber diameter were reduced to one tenth of this and the spacing reduced in proportion the pressure would be ten times as great. A pressure of this order of magnitude, though appreciable, is not sufficient to cause much compacting of a sheet.

The pressure caused by surface tension acting as above only comes into play as the water surface falls below the level of the surface fibers but the water still fills all the

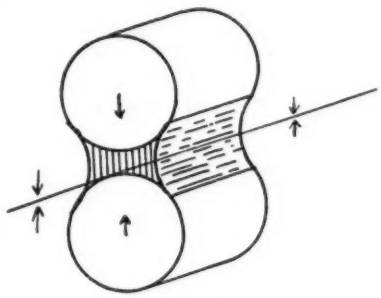

FIG. 2

interstices in the sheet. It is equivalent to an externally applied pressure. But with further removal of water, surface tension comes into play in a different manner. The water is now held in small layers or "drops" supported by two or more fibers and by its own surface tension. In Fig. 2 is shown an idealized diagram representing two fibers, assumed to be round and parallel to each other. Between these two fibers is a layer of water. This layer of water is bounded in part by two concave surfaces which extend in the direction of the fiber axis. As this is considered as only a short segment of the two fibers the surfaces shown at right angles are not counted. In each of these two surfaces the normal surface tension of water exists so that there is a net tendency to pull the fibers toward each other. This pull amounts to twice the surface tension or about 150 dynes per centimeter fiber length. Although it is very unlikely that such an idealized situation will be very frequent throughout the pulp mass it will be readily seen that conditions similar in principle will obtain wherever a small portion of water separated from the bulk volume is supported by two or more fibers. In all cases there will be exposed surfaces in which surface tension will operate to draw the fibers together. The total effect will be to produce a tendency for the mass to contract in bulk until a condition is reached where such contraction is resisted by the strength of the structure. It is important to realize that these forces act on the individual elements of the structure and may, by distorting these, cause greater or less collapse of the whole. It is also to be realized that the intensity of the force is *independent of the dimensions of the fibers* acted upon.

Since the intensity of 75 dynes per centimeter of surface acting, or 150 dynes per centimeter fiber length for the case illustrated, is the same regardless of the fiber cross section, the deformation produced by the force will depend entirely on the cross section area and stiffness of the fibers. As shown in Note A (see appendix), if we consider a millimeter length of fiber as a beam supported at the ends and uniformly loaded by this force of 150 dynes per centimeter length there would be a deflection at the center of 0.0002 cm. in the case of an ordinary wood fiber of a diameter 0.003 cm. But if we have a fibril with a diameter of one-tenth that of the wood fiber the deflec-

[2] Strachan, James, Paper Makers' Assn. Great Britain Proc. Tech. Sec. 6, pt. 2. 157 (1926).

tion would be, by the same calculation 2.0 cms. or 10,000 times as much. Of course a deflection of 2 cms. on a span of one millimeter is absurd and merely indicates that the fibril would be completely pulled out of place and any portion of the structure dependent on it would collapse. From this it is obvious that a sheet made up largely or entirely of coarse fibers will show little shrinkage on drying because the surface tension will not be a sufficiently great force to have much effect in disturbing the structure. On the other hand a sheet consisting largely of fibrils will shrink very extensively on account of the low resistance of these in comparison to the surface tension forces. Qualitatively, at least, fibrillation can account for the large shrinkage during drying and for the high final density of sheet.

Increased Strength

To some degree the increase in strength produced by beating may be accounted for simply as a result of the increased density since nearly the same strength increase can be obtained by simple wet pressing to the same sheet density. Since the surface tension effect can increase the density it can be expected to also increase the strength. Doughty,[3] at the Forest Products Laboratory, Madison, Wisconsin, has shown that there is little difference in tensile strength between beaten and unbeaten pulps when the wet pressing is so carried on as to make the sheets of the same solid fraction. The difference is, however, quite definite and should be accounted for. (The difference between dry and slush pulps is not considered here. It appears to be largely due to a time factor involved in the penetration of water into the fiber.) That there is some kind of bond formed between fibers which dry in contact with each other is hardly open to doubt. That fibrillation by increasing the number of contact points can increase the number of such bonds is also evident. On this score alone one would expect a fibrillated (beaten) pulp to show increased tensile strength over one of the same solid fraction produced by pressure only. The nature of these bonds is still open to question and nothing has as yet been proven in this connection. In the opinion of the writer it seems likely that at least a considerable proportion of the bonds are of the nature of a crystallization taking place between the surfaces of the contacting fibers. Bonds formed by such an action would be of various degrees of strength and resistance to the later disintegrating action of water, though there would probably be some fairly uniform value for the average strength of a large number of them. The variation would come about through the laws of chance in that to get a perfect fusion of the two crystal structures they would have to be of exactly the same orientation at the point of contact. Any departure from perfect orientation would necessitate a transition layer of imperfectly crystallized cellulose. Such a layer would have lower strength and greater solubility in proportion to its departure from perfect crystal structure. The fact that even long continued submersion of a sheet made from fibrillated pulp does not reduce its strength to that previous to drying indicates that water alone does not destroy all the bonds. Probably even mechanical action in water leaves some of the more nearly perfect ones intact.

Even aside from the greater number of bonds possible in hydrated stock, the following considerations indicate that there is a probability of forming bonds of better quality in the case of the fibrillated pulp. Once again the surface tension of the liquid water comes into play. In Fig. 3 are shown fibers in a similar manner to those of Fig. 2 except that the amount of water has become less and the fibers are now assumed to be in contact.

If the fibers are round or approximately so, they will only be in contact at one point or over a very small area caused by flattening under pressure. The total pull due to the surface tension of 150 dynes per centimeter length will result in a pressure on this very small area and may amount to a rather high specific pressure if the area be small. As shown by the calculation in Note B, (see appendix) the resultant pressure in the case of whole fibers of diameter 0.003 cm. is of the order of 87 pounds per square inch. In the case of fibrils of diameter 2×10^{-4} cm. the pressure becomes 540 pounds per square inch, going up to 2480 pounds per square inch if the fibril is one-tenth of this. Such pressures may conceivably bring the two portions of cellulose into such intimate contact that their own molecular attraction of crystallizing force can come into play. If this happens the force will be enormously increased and may well result in very strong bonds

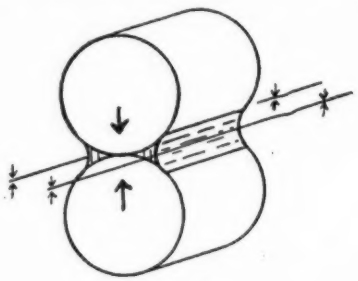

FIG. 3

of a more permanent nature. The possibility of such forces coming into play may be realized from the fact that Johannsen steel gauges have been polished with such perfection as to enable them to support a pull of more than 400 pounds per square inch above atmospheric pressure by mere contact of two polished faces.

The decrease in tearing strength is probably due largely to shortening of fiber length but the increased coherence of the sheet will also have an effect by concentrating the tearing forces on the point at which rupture takes place instead of being diffused through a larger surrounding area.

Transparency and Dyeing Character

Granting the above points as to a greater degree of bonding and greater sheet density, the explanation of greater transparency in the resulting sheet is fairly obvious. There is very little light absorbed by cellulose itself and a homogeneous mass of cellulose is transparent. Opacity in paper is due to multiple reflections from surfaces inside the sheet. If the number of such reflecting surfaces is diminished by the fibers becoming merged into one another, the whole must become more transparent. This same factor must influence the color produced by dyes. All the ordinary dyes act by absorbing light of specific color and the depth of shade resulting depends on the amount of absorption. Any white light reflected in addition to that of the color desired acts to diminish the relative intensity of that color. Of two sheets each containing the same proportion of dye the one reflecting most light (greatest opacity) will appear lightest in color. To get equal depth of color will require extra dye for the sheet which if undyed would be least transparent.

Objection may be taken to the whole of the foregoing hypothesis on the score that in the early stages of beating there is no fibrillation visible yet there is a very considerable increase in tensile strength. This is in-

[3] Doughty, R. H., Tech. Assn. Papers, *14*, 243 (1931).

deed a weighty objection and to meet it by suggesting that in the early stages there is a rapid development of fine fibrils, invisible under moderate magnification, seems hardly adequate. The work of Doughty has shown that a very little beating transforms the fiber so that at equal solid fractions in the finished sheets the strength is independent of the degree of further beating. In other words, the first few minutes beating have produced all the surface effects possible and all strength produced by further beating may equally well be produced by making an equal concentration of pulp in the sheet by pressure while wet. By beating we reduce the dimensions of the structural units so that surface tension can cause the concentration through shrinkage; by wet pressure the concentration is produced mechanically by outside forces.

But it is essential to consider what may occur during that first few minutes of beating. In part it may be a time effect pure and simple due to the difficulty of water penetrating the fibers. But as the effect is noticeable even when pulps have been soaked for long periods before beating this time effect explanation seems inadequate. Since shrinkage is increased though the fiber dimensions are unchanged it seems evident that the flexibility of the fibers has been increased or that greater forces are acting to cause shrinkage. Assuming that surface tension is the active force, it is not altered in intensity so that the fiber must be rather more flexible. This would account for the shrinkage but would not account for the slightly greater strength at the same solid fraction. This calls for some extra development of available surface before visible fibrillation commences.

On the theory that bonding is due to forces such as cause crystallization and that the bonds formed, whether between fibers or between the fibrils in a single fiber, vary in strength according to the degree in which the elements in the bond approach crystal regularity of position an explanation may be found. Such bonds are not only weaker as they depart from perfection of crystal structure but they are also more soluble. When the fibres are soaked in water for sufficient time all those soluble are broken by solution and a corresponding degree of swelling takes place. If, after this condition is reached, mechanical flexing occurs there will be some additional breaking of bonds and further swelling will be possible. The additional breaking of the bonds will be greatest where the stress on flexing is greatest, that is, on the fiber surface. Consequently we may expect that there be a loosening of the surface fibrils from each other which will precede their actual appearance as broken out from the fiber. Such loosening, which may be termed "internal fibrillation," would render the fiber more flexible and at the same time give an effectively greater opportunity for contact and bonding with other fibers.

In these explanations the force of surface tension has been called upon as the compacting agency. By no means the full power of this force has been invoked however. If we have, say, a drop of water or other liquid between two parallel plates which are close together the surface tension sets up an attraction between these plates. This attraction is made up of two parts of which only one has been called upon so far. This is the direct surface tension force which varies with the surface tension of the liquid and the *length of the line* over which it acts. The other part of the attraction is due to an accompanying internal tension effect which is active over the *wetted area.* The intensity of the first part is independent of the distance of the plates while the second is inversely proportional to this distance. The intensity of the second part can be calculated from the drop in the equilibrium relative vapor pressure and only becomes appreciable when the distance between the plates is less than 0.001 mm. But as the distance between the plates becomes less the intensity of this part increases rapidly and at low relative vapor pressures is very great. Even at 90 per cent relative vapor pressure it amounts to about 145 atmospheres or 2130 pounds per square inch. While it must be active to a considerable extent in causing shrinkage of the sheet and the bonding of fiber to fiber it probably is much more important in causing shrinkage of individual fibers and on this account has not been called upon in the above explanations.

Appendix

NOTE A

During the drying out of paper the fibers and fibrillæ form the elements of a structure and are disposed largely in chance arrangement though there is a decided preference for lying with the long axis parallel to the plane of the wire on which the sheet is formed. All sorts of loading conditions are possible, concentrated loads, distributed loads on beams supported at one, two, three or more points, direct compression and combinations of these as well as some elements which may bear tension loads. Only one simple example of a uniformly loaded beam is considered since this is a condition of great probability. Surface tension of water will apply a load of about 150 dynes per centimeter length. The modulus of elasticity is taken on the high side but is not far out for fibrils where the elements are parallel or nearly so. The value taken is $E = 14 \times 10^{10}$ dynes/cm². For a beam of span $L = 0.1$ cm., square in section with diameter, d, loaded uniformly at 150 dynes per centimeter length the deflection at the center may be calculated from the formula

$$\frac{5}{32} \times 150 \times \frac{L^4}{14 \times 10^{10} \times d^4} \text{ or } 1.67 \times \frac{10^{-10} L^4}{d^4}$$

For $d = 3 \times 10^{-3}$ cm., an ordinary fiber, this gives a deflection of 2×10^{-4} cm., or one-fifteenth of the fiber diameter.

For $d = 3 \times 10^{-4}$ cm., or one-tenth of the above, the deflection becomes 10,000 times as great or 2.0 cm. showing that the force is quite enough to wreck this portion of the structure.

NOTE B

The pressure at the point of contact between a roller loaded with a given weight per unit length with a plane surface or with a similar roller is given in 'Merriman's Mechanics of Materials' as being $(9W^2E/8d^2)^{1/3}$ where W is the weight per unit length of roll, E, the elastic modulus of its material and d, its diameter. In the case of two fibers or fibrils, supposed round, the load due to surface tension of water in the "nip" is 150 dynes per centimeter length. The modulus of elasticity of cellulose as determined by Brown, Mann and Peirce (Mem. Shirley Inst. *9*, 1 (1930) varies from 3 to 9 $\times 10^{10}$ dyne per square centimeter. The low value appears to be due to slippage between fibrils when wet. The true value for the modulus (linear extension) is probably in the neighborhood of 14×10^{10} dynes per square centimeter. As only the cube root of this is involved the approximate value of 8×10^{10} is taken as sufficiently accurate. This gives the following pressures.

diameter, cms.	Pressure, dynes/cm²	Pounds/in.²
3×10^{-3}	0.6×10^{7}	87
2×10^{-4}	3.7×10^{7}	540
2×10^{-5}	17.0×10^{7}	2480

These values, of course, only indicate the order of magnitude of the pressures since the shapes of the fibrils are not known.

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

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Pulp and Paper Testing

Waterproof Abrasive Sheets or Polishing Paper. Carl Klingspor. U. S. pat. 1,833,715 (Nov. 24, 1931).—A base material such as paper is coated with a mixture formed of glue, unsolidified phenol-formaldehyde condensation product and an alcoholic diluent at a temperature of about 75° C., abrasive material is applied, and the resulting layer is covered with liquid organic sizing material such as a mixture of phenol-formaldehyde condensation product, alcohol and glycerin and the temperature of the coated material is then gradually raised to about 150° C. for 10 to 36 hours to effect solidification.—A. P.-C.

Felted Cellulose-Fiber Product. George L. Schwartz assignor to The Canadian Industries, Ltd. Can. pat. 315,873 (Oct. 6, 1931).—A felt made from kraft pulp, in which fibers have been curled and kinked, is treated with a 10 to 11% alkali solution at —5°C. for 5 sec. to gelatinize the fibers without dispersing the cellulose, and the gelatinized fibers are pressed. The temperature is increased while the pressure is maintained, and the felt is then passed through an 18% caustic soda solution at 100° to 104°C. for 5 sec. The felt is washed to reduce the swelling of the fibers and facilitate their kinking and curling. The felt is then passed over any well-known paper-drying apparatus.—A. P.-C.

Corrugating Machine. Arthur B. Saunders assignor to Johns-Manville Corp. U. S. pat. 1,843,648 (Dec. 1, 1931).—The machine comprises a table having a corrugated top and a roll having corrugations which mesh with the corrugations of the table. Means are provided for causing relative reciprocation of the table and roll, and for removing excess moisture from the wet sheet of pulp being treated.—A. P.-C.

Fiber Product. August Gerard and Maurice Weisman assignors to Cotton-Wood Products, Inc. U. S. pat. 1,837,261 (Dec. 22, 1931).—A cushioned fiber product is made of a layer comprising a mixture of particles of partially disintegrated paper and of particles of completely disintegrated paper, faced on both sides with a sheet of paper or fabric.—A. P.-C.

Device for Continuously Drying Paper Webs Provided with Areas of Varnish. Paul Gangler assignor to Fr. Hesser Maschinenfabrik-A. G. U. S. pat. 1,838,480 (Dec. 29, 1931).—The varnished paper is dried by leading into a drying chamber where it is guided in spirals running from the outside towards the inside. The driving means comprises sets of driving rolls and sets of idle rolls, the speeds of the driving rolls increasing from the outside towards the inside.—A. P.-C.

Sheet Material Containing Synthetic Resin. Leo H. Baekeland assignor to Bakelite Corp. U. S. pat. 1,842,647 (Jan. 26, 1932).—A sheet material is made by preparing an aqueous suspension of fiber and reactive resin, sheeting and draining, and treating with a current of heated dehydrated gas so that the temperature of the sheet remains below that at which excessive softening of the contained resin would occur.—A. P.-C.

Rubberized Sheet Material. Reed P. Rose and Harold E. Cude assignors to General Rubber Co. U. S. pat. 1,839,996 (Jan. 5, 1932).—Paper making fiber including cotton fiber is treated with alkali such as sodium carbonate solution at a temperature of about 108°C. for about 1.5 hours to remove fats, waxes and other non-cellulosic material, followed by washing, beating, addition of an aqueous rubber dispersion, deposition of the rubber on the fibers, forming into sheets, embossing and coating with waterproof varnish. The product thus formed is suitable for making imitation leather.—A. P.-C.

Fiber-Rubber Material Suitable for Shoe Soles. Reed P. Rose and Allen F. Owen assignors to Mechanical Rubber Co. U. S. pat. 1,843,581 (Feb. 2, 1932).—An aqueous suspension is formed comprising rubber and vegetable fiber, and the rubber is deposited upon the fiber. A relatively thick wet sheet is formed of the material, and this sheet is subjected to cold pressing without flowing or spreading it to compact and remove moisture, and is then dried to not substantially over 15% moisture, and hot pressed.—A. P.-C.

Rubber-Fiber Articles. Frank O. Woodruff assignor to Harry H. Beckwith. U. S. pat. 1,842,706 (Jan. 26, 1932).—A loose mass of unwoven fibers such as cotton treated with dilute acetic acid solution is saturated with an aqueous rubber dispersion. Excess dispersion is removed from the mass; the latter is dried, beaten in water to separate the fibers from one another, and the beaten fibers are formed into desired articles such as shoe soles or automobile tops.—A. P.-C.

Artificial Leather. George A. Richter assignor to The Brown Co. Can. pat. 318,254 (Dec. 22, 1931).—A web of loosely felted unmercerized wood pulp high in alpha-cellulose is impregnated throughout with rubber coagulated from latex and vulcanized with a solution of sulphur chloride in a solvent of the rubber.—A. P.-C.

Artificial Leather. George A. Richter and Wallace B. Van Arsdel assignors to Brown Co. U. S. pat. 1,843,372 (Feb. 2, 1932).—A material suitable for shoe parts, automobile tops, etc., comprises a rubber-impregnated sheet of interfelted cellulose fibers having a surface portion of lower rubber content than the rest of the sheet whereby the surface is suitable for coating with lacquers.—A. P.-C.

Process for the Manufacture of Fire-proof and Waterproof Fibrous Material. Deutsche Kunstseiden-Studiengesellschaft m.b.H., Berlin. Ger. pat. 546,735 (March

13, 1930).—The fibrous material is first mildly esterified with derivatives of higher fatty acids and thus made water-proof, and then at higher temperatures, preferably over 40° C. drenched with fire-proof salts.—J. F. O.

Arrangement for the Manufacture of Plates of Large Size from Wood Fiber Materials. Xylotin Akt. Ges. Thusis. Ger. pat. 543,313 (July 6, 1930).—J. F. O.

Process for the Water Marking of Paper. I. G. Farbenindustrie Akt. Ges., Frankfurt a.M. Ger. pat. 544,652 (March 28, 1929).—The colored or uncolored web of paper on the wire is brought together with another web of paper which is of a different color and as thin as possible. This action takes place just before the dandy roll and the two webs joined together are treated simultaneously with the dandy roll.—J. F. O.

Arrangement for Impregnation of Fibrous Materials, Especially Webs of Paper, with Insulating Material in Vacuum. W. T. Clover & Co., Ltd., Manchester, England. Ger. pat. 534,059 (March 7, 1929).—The web of fibrous materials is led, after leaving the vacuum, through a liquid seal composed of the impregnation liquid.—J. F. O.

Process for the Coating of Sheet and Web-Like Materials with Color, Varnish, Lacquers and Similar Substances, Especially for Marbled Papers. George Mackenzie Brown, London. Ger. pat. 531,655 (Feb. 15, 1930).—J. F. O.

Process for Joining Several Materials with Different Surfaces, for Example Metal Foil with Paper or Other Webs. Leopold Rado, Berlin. Ger. pat. 530,118. (May 28, 1927).—J. F. O.

Process for the Manufacture of One or Multi-Layered Roofing or Insulation Paper or Board or Felt, in which the Material Is Soaked in a Material Which Makes It Water-Proof. Gustav Adolf Jahn, Bad Godesberg. Ger. pat. 530,529 (Sept. 4, 1928); 531,761 (July 6, 1929).—J. F. O.

Reagent Paper. Aktiengesellschaft vorm. Skodawerke, Prague. Ger. pat. 530,530 (February 21, 1930).—The paper contains a determined amount of organic or inorganic base, that is an acid or alkaline reacting salt, besides the indicator such as phenolphthalein or congo red; so that the change in color will not only show the change in color but will also give the degree of acidity or alkalinity of the solution being tested.—J. F. O.

Process for the Preparation of Cigarette Paper Whose Products of Combustion Are Free from Unpleasant and Biting After Taste. Basil Seferidis in Maisons-Lafitte, Seine et Oise, France. Ger. pat. 533,199 (Jan. 29, 1930).—Aromatic gum resin, especially mastic or gum arabic or purified tragacanth, is incorporated by sprinkling or impregnation of the paper stock during its process of being made into paper, or of the finished paper. According to claim number 2, 3 to 5 per cent of mastic, calculated on the dry paper, is dissolved in an acetone alcohol mixture and added to the stock at the head box. According to claim number 3, mastic sugar is also added in a quantity of about 2 per cent of the dry paper.—J. F. O.

Process for the Manufacture of Hollow Bodies from Fibrous Stock. Baumgartner, Dr. Katz & Co. G.m.b.H. Ger. pat. 530,878 (Jan. 24, 1929).—J. F. O.

Process for Making Fibrous Materials Inflammable. I. G. Farbenindustrie, A. G., Frankfurt a.M. Ger. pat. 525,646 (Jan. 16, 1930).—After impregnation with the usual salt solution which makes it inflammable, the fibrous material is treated with dichlorinated naphthaline.—J. F. O.

Formation of Wrinkles in Board. Prasch. Wochbl. Papierfabr. 63, No. 1: 12 (Jan. 2, 1932).—Wrinkles in board can be avoided by keeping the stock from getting too short and too fine. The felt should not be too wet and it should not be conducted to the forming roll at too great an angle. The formation roll should not be loaded too much and the breast roll should have a diameter as large as possible.—J. F. O.

Process for the Manufacture of One-Sided Finished Paper, Carton, Board and Similar Materials. I. G. Farbenindustrie Akt. Ges., Frankfurt a.M. Ger. pat. 536,606 (July 4, 1929). Addition to Ger. pat. 510,855.—In carrying out further the main patent 510,855, the paper is moistened with a starch solution on the side to be finished, before the finishing operation. The starch solution contains hardening means such as chromium alum, aluminum sulphate, formaldehyde and others.—J. F. O.

Process for the Manufacture of Insulation Paper for High Tension Cables. Felton & Guilleaume Carlswerk Akt. Ges., Cologne. Ger. pat. 534,734 (July 3, 1926).—Such paper, whose weight by volume has been increased more or less by mechanical ways such as by presses or rolls, is inserted between one or multiple layers of another paper whose weight by volume already is increased in the manufacture of the paper by excessive beating of the entire stock or a part of the same.—J. F. O.

Process for the Manufacture of Carton for Stereo-Type Matrix and Other Purposes. Maschinenfabrik Winkler, Fallert & Co. Bern. Ger. pat. 538,048 (Feb. 18, 1927).—J. F. O

Process for the Manufacture of Materials Suitable for Paper Bags. A. Holter, Brevik. Nor. pat. 49,218 (Nov. 19, 1926).—The material consists of several layers of impregnated paper.—J. F. O.

Wood Fiber Material Consisting of Mechanical Decomposed Wood. Verein Deutscher Holzstoff Fabrikanten E. V. Dresden. Ger. pat. 542,915 (Sept. 12, 1930).—The new wood fiber material is characterized by being prepared by removing the hydrated fibers and the finest fragments by washing and without pressing, the material is freed from the water and dried. It has a loose homogeneous texture which is not felted or cemented together and has a texture similar to wool.—J. F. O.

Device for the Manufacture of Hollow Bodies from Fiberoid Materials. Sophus Berendsen A. S. Kopenhagen. Fin. pat. 13,718 (July 5, 1929).—The manufacture takes place in forms with previous walls. The forms are fed with the fibrous material by means of compressed air.—J. F. O.

Condensor Paper from Kraft Paper. Zellstoff Papier 11, No. 12 (Dec. 1931).—Condensor paper 0.0001 millimeters thick can be made from kraft pulp by beating it for 36 to 40 hours with the roll of the beater gradually touching the bed plate.—J. F. O.

Process for the Manufacture of Colored Papers with Designs by Couching Together Several Webs of Paper of Different Colors and If Necessary Also with Designs, on a Paper or Carton Machine. I. G. Farbenindustrie Akt. Ges., Frankfurt a.M. Ger. pat. 531,924 (July 18, 1928).—J. F. O.

Process for the Manufacture of Two or Multi Colored Effects on Paper on a Paper Machine. I. G. Farbenindustrie Akt. Ges., Frankfurt a.M. Ger. pat. 531,925 (Sept. 2, 1928).—It was found that very peculiar colored designs could be obtained on paper, if a well beaten stock of a certain color is brought in contact with an unbeaten stock of a different color, the two webs being couched together and then subjected to a high pressure at the wet presses. In this manner, the top layer because of its greasy character is well felted together with the bottom layer, thus producing the desired color effects.—J. F. O.

Process for the Manufacture of Colored Relief-like Designed Paper. I. G. Farbenindustrie Akt. Ges., Frankfurt a.M. Ger. pat. 533,196 (Oct. 23, 1928).—J. F. O.

Process for the Manufacture of Parchment Paper Consisting of Several Layers of Paper. Gabriel Filliat in St. Egreve. France. Ger. pat. 536,234 (Oct. 20, 1929).—A sheet of paper, considerably strengthened, is manufactured by having several layers of paper parchmentized separately and all subsequently joined together, the inner layer being treated in such a manner that the fibers in this sheet are transverse to the other sheets.—J. F. O.

Process and Arrangement for Making Paper and Carton Waterproof. Naamlooze Vennootschap De Bataafsche Petroleum Maatschappij, Hague, Holland. Ger. pat. 536,019 (Sept. 14, 1929).—The invention concerns itself with a process in which water repelling materials, especially those of a bituminous nature, are kept in agitation by air in an aqueous dispersion and brought onto the sheet by coating rolls.—J. F. O.

Process for the Manufacture of Corrugated Board from Paper, Board and Similar Materials. Jacob Moll, Lucka, Altenburg, Ger. pat. 532,220 (Oct. 26, 1929).—Arrangement of nozzles for spraying the adhesive materials onto the smooth or corrugated paper or board.—J. F. O.

Machinery

Recent Trends in the Design of Paper Machinery. P. M. Foster. Paper Trade J. 94, No. 16: 42-44 (April 21, 1932).—A brief review of current developments and recent improvements in the various sections of fourdrinier machines, illustrating the present trend in design.—A. P.-C.

Automatic Paper Making. Melvin R. Ware. Paper Mill 55, No. 14: 4 (April 2, 1932).—A brief outline of the principle of the Ware automatic paper-making system.—A. P.-C.

Barking Machine. Aktiebolaget Ekonomisk Traforedling, Stockholm. Ger. pat. 530,514 (Feb. 21, 1930).—A barker of the friction type.—J. F. O.

Device for the Barking of Wood by Rubbing the Wood Together and on the Support. Heinrich Wigger & Co. and Reinold Bomcke, Unna. Ger. pat. 526,221 (July 6, 1929).—The support is fixed in such a manner that the logs are given an eccentric motion, thus rolling them down an incline and into a tank of water.—J. F. O.

Machine for the Barking of Logs. Albert Bezner, Ravensburg. Ger. pat. 529,087 (Feb. 28, 1930).—J. F. O.

Barking Drum. K. G. Hellner and A. G. Johansson, Waplan, Sweden. Ger. pat. 545,128 (March 8, 1931).—Method of feeding the logs to the drum.—J. F. O.

Arrangement for a Barking Drum. A. G. Johansson, Waplan, Sweden. Fin. pat. 13,706 (Feb. 1, 1929).—A change in the original patent 13,107 is described, in which only a part of the supporting rolls are used for the drive, the remainder being used as supports only.—J. F. O.

Barker. Friedrich Tismer, Berlin. Ger. pat. 541,950 (Dec. 11, 1930).—Gears, rolls or endless chains are so motivated, individually or in multiples, that the logs are pushed forward to the barker where they are taken hold of by means of spikes or sharp edges.—J. F. O.

Machine for the Barking of Logs. Albert Nezner, Ravensburg. Ger. pat. 542,904 (Jan. 30, 1931). Addition to Ger. pat. 529,087.—J. F. O.

Bark-Removing Machine. De Lona Calahan. U. S. pat. 1,851,156 (March 29, 1932).—An electric motor is mounted on a pivoted frame supported in another frame, the height of which can be varied. A cutter head is mounted on the motor shaft and acts on blocks or slabs which are conveyed along a guideway extending under the cutter. Levers are provided for varying the height and inclination of the motor-carrying frames, and for locking them in any desired position.—A. P.-C.

Bark Peeling Machine. Friedrich Baumbach, assignor to Zellstofffabrik Waldhof. U. S. pat. 1,854,920 (April 19, 1932).—The barker consists of a large rotating wheel, having a V-shaped groove in the rim and the bark-removing knives mounted on each side of the groove. The wood is fed into the groove; it is prevented from rotating with the wheel, but is caused to rotate about its own longitudinal axis.—A. P.-C.

Chipper Knives. John E. Hassler. Pacific Pulp & Paper Ind. 6, No. 3: 17-18 (March, 1932).—A general discussion of the proper care and use of chipper knives.—A. P.-C.

Arrangement for the Filling of Steam Cookers or Digesters Operating with a Determined Maximum Pressure, with Steam for the Steaming of Wood, Straw and Similar Materials. Valdemar Willemoes d'Obry, Godesberg. Ger. pat. 533,580 (July 19, 1928).—J. F. O.

Filling Device for Pulp Digesters. Werner Scholz and Arno Frohberg, Breslau. Ger. pat. 531,451 (May 31, 1928).—By means of steam and cones specially arranged, the chips of wood are packed better and more evenly.—J. F. O.

Device and Process for the Filling of Digesters. Metallgesellschaft A. G. Frankfurt a.M. Ger. pat. 537,749 (Nov. 3, 1927).—In the throat of the digester is a series of nozzels connected to a header through which the cooking liquor passes. These nozzels are placed in such a position so that they give to the chips the desired direction and velocity so that they are evenly distributed and well packed.—J. F. O.

Greasing and Packing Material for the Packing Boxes of Circulating Pumps and Similar Apparatus for Pulp Digesters. Einar Morterud, Torderoed, Norway. Ger. pat. 538,254 (July 26, 1930).—Evaporated pulp waste liquor without the addition of any other material is used as a grease and packing material.—J. F. O.

Process and Arrangement for Shortening the Relief Gasing of Pulp Digesters. Julius Perlis, Berlin. Ger. pat. 538,540 (May 14, 1927).—J. F. O.

Device for the Filling of Pulp Digesters. Metallgesellschaft A. G., Frankfurt a.M. Ger. pat. 539,937 (Jan. 25, 1929).—Method for filling horizontal digesters.—J. F. O.

System of Pipes, Ring Shaped and Provided with Holes, for the Introduction of Liquor and Steam in the Lower Part of a Digester. Anton Gentil, Aschaffenburg, a.M. Ger. pat. 543,397 (Dec. 9, 1930).—The arrangement is provided to prevent the steam and liquor from "boring" a hole through the chips in the digester.—J. F. O.

Acidproof Cementing Composition. Anton Gamberg assignor to I. G. Farbenindustrie A. G. U. S. pat. 1,837,614 (Dec. 22, 1931).—An acidproof composition suitable for lining metal vessels is prepared by mixing 400 parts of water glass with 800 parts of powdered alloy containing 85% silicon and 15% parts of iron, 150 parts of clay and 50 parts of sodium fluosilicate. The composition is characterized by excellent thermal conductivity and hardening power.—A. P.-C.

Sulphite Pulp Digester. Ralph H. McKee. U. S. pat. 1,841,752 (Jan. 19, 1932).—A digester is formed of a steel alloy having a low carbon, phosphorus and sulphur content and containing a metal such as chromium about 15 to 20% and a metal such as nickel 7.5 to 10%.

The metal may also contain manganese and silicon, about 0.5% each.—A. P.-C.

Digester. Joaquin J. de la Roza, Sr. U. S. pat. 1,849,866 (March 15, 1932).—The charge is placed in a basket which is introduced bodily into the digester, the inner wall of which is provided with vertical rails to guide the basket during insertion and removal and to prevent it from contacting with the digester wall during cooking. The charging hole is of practically the same cross sectional area as the body of the digester, and the latter is jacketed for circulation of a temperature-controlling medium.—A. P.-C.

Device for Feeding the Wood to a Continuous Wood Grinder. Johan Mathias Barstad, Oslo. Ger. pat. 529,758 (Nov. 20, 1928).—Amongst the disadvantages of the feed arrangements used till the present, is that stresses are set up in the pile of wood in the magazine which makes calculations of the pressure of the wood on the stone impossible. This disadvantage is removed by having two wheels with teeth placed on one side of the magazine, the speed of rotation of these wheels determines the amount of wood fed to the stone. On the other side of the magazine is a vertical spiral which assists the wood in its passage downward.—J. F. O.

Regulation Device for the Feed in Wood Grinders with Several Stones Driven by a Mutual Electric Motor. Siemens-Schuckertwerke Akt. Ges., Berlin. Ger. pat. 530,374 (April 22, 1926).—J. F. O.

Sharpening and Cleaning Device for Wood Grind Stones. George Rommel, Berlin. Ger. pat. 540,294 (July 1, 1930).—Method for getting an absolutely uniform surface on the stone.—J. F. O.

Ring Shaped Grind Stone for Wood Pulp Grinders. Andreas Jordan, Dresden. Ger. pat. 542,213 (Nov. 16, 1930).—J. F. O.

Regulating Device for Wood Grinders with Mechanical Loaded Presses. Firma J. M. Voith, Heidenheim. Ger. pat. 540,649 (May 15, 1926).—J. F. O.

Device for the Automatic Regulation of a Pulp Grinder. Aktiengesellschaft Brown, Boveri & Cie, Baden. Ger. pat. 525,505 (Dec. 17, 1927).—J. F. O.

Lining for Pressure Apparatus with Metal Plates Which are Resistant to Chemical Action and Which Consists of Single Segments. Heinrich Koppers A. G. Ger. pat. 525,555 (Aug. 16, 1929).—J. F. O.

Arrangement for the Automatic Regulation of the Feed with Pulp Grinders Driven by Electricity. Bergmann Elektricitatswerke Akt. Ges., Berlin. Ger. pat. 533,235 (Oct. 26, 1928).—J. F. O.

Regulating Device for Wood Grinders with Mechanically Loaded Presses. Fa. J. M. Voith, St. Polten. Czech. pat. 37,271.—The hydraulic transmission line is regulated by an electric or centrifugal regulator.—J. F. O.

Wood Grinding Apparatus. Eino F. Laurila, Tuokslahti. Fin. pat. 13,720 (Jan. 19, 1929).—Method of feeding the logs and holding same against the grind stone.—J. F. O.

Device for the Sharpening of Grind Stones. Firma J. M. Voith, Heidenheim Ger. pat. 544,850 (Sept. 7, 1929).—J. F. O.

Doctor for Paper Machine Rolls. Vickerys, Ltd. Belg. pat. 380,966 (July 31, 1931).—The doctor blade is held in position in its support by means of projecting lugs forming an integral part of the blade and which engage slots in the support, from which they can be disengaged only by a longitudinal movement. The projections extend only over a short distance of the blade so as not to interfere with the bending of the blade.—A. P.-C.

Fourdrinier Wire. Cheney Bigelow Wire Works. Fr. pat. 718,061 (Jun 2, 1931).—At regular intervals, one of the bronze or brass warp wires is replaced by a wire of the same size, made of stainless steel.—A. P.-C.

Paper Making Felt. Aktiengesellschaft der Oesterreichischen Felzfabriken. Belg. pat. 380,778 (July 31, 1931).—The felt has an inner layer of a rather closely woven fabric in which the threads in one direction, preferably the filler, are very heavy and spaced relatively wide apart.—A. P.-C.

Calender Roll Filling. James Fish assignor to Henry P. Shopnck. U. S. pat. 1,854,509 (April 19, 1932).—The roll comprises a wide, fibrous, substantially cellulosic midsection, and comparatively narrow sections of heat-resistant materials at or near the ends.—A. P.-C.

Modernizing a Paper Machine Drive. L. B. Rogers and H. F. Banan. Paper Ind. 14:38-40 (April 1932).—A description of the sectional electric drive recently installed on No. 5 machine in the Lawrence, Mass. mill of Champion International Co.—A. P.-C.

Drive for Paper Machine Driers. Siemens-Schuckertwerke A. G. Belg. pat. 380,898 (July 31, 1931).—In driers having several felts, one of the motors driving the rolls of any given felt is kept in synchronism with one of the motors driving the rolls of the next succeeding felt.—A. P.-C.

Regulating Device for the Single Motors in a Multiple Motor Drive Especially for Paper Machines. Siemens-Schuckertwerke Akt. Ges., Berlin. Ger. pat. 542,964 (Dec. 17, 1929).—J. F. O.

Regulating Device for Multiple Motor Drive, Especially for Paper Machine. Siemens Schuckertwerke Akt. Ges., Berlin. Ger. pat. 542,794 (July 17, 1930).—J. F. O.

Method and Arrangement for the Starting of Relatively Parallel Regulated Motors of a Paper Machine. Aktiengesellschaft Brown & Boveri Cie, Baden. Ger. pat. 541,297 (July 21, 1927).—J. F. O.

Device for the Regulation of Machines Which are Driven by Several Special Electric Motors. Allgemeine Elektricitatesgesellschaft, Berlin. Ger. pat. 530,108 (July 7, 1924).—J. F. O.

Device for the Regulation of the Electric Drive for Paper Machines According to Patent 526,778. Aktiengesellschaft Brown, Boveri & Cie, Baden. Ger. pat. 534,195 (Feb. 7, 1928). Addition to Ger. pat. 526,773.—A synchronous machine with an oscillating mass is used as the feeder of energy.—J. F. O.

Electrical Multiple Motor Drive for Paper Machines. Aktiengesellschaft Brown, Boveri & Cie, Baden. Ger. pat. 534,786 (Oct. 17, 1926).—The invention concerns itself with a drive in which the differential drives arranged to the single motors are influenced by the speed of the shaft driven by the guide motor.—J. F. O.

Arrangement for the Regulation of Alternating Current Feed Motors. Siemens Schuckertwerke A. G., Berlin. Ger. pat. 522,867 (Nov. 9, 1928).—The invention makes possible the use of alternating motors for the feed of wood in pulp grinders.—J. F. O.

Regulating Device for Asynchronous Motors for Calender Drives. Siemens Schuckertwerke A. G., Berlin. Ger. pat. 524,021 (July 4, 1926).—J. F. O.

Arrangement for the Regulation of Electrical Drives for Paper Machines. Aktiengesellschaft Brown, Boveri & Cie, Baden. Ger. pat. 526,773 (July 9, 1927).—A differential drive is connected between the motor doing the driving and an auxiliary motor whereby the speed of the drive motor is regulated.—J. F. O.

Insulation for Electrical Equipment. E. C. Dieffen-

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bach. Paper Trade J. 94, No. 10: 38-48 (March 10, 1932). —An outline of the properties and methods of testing of the principal electric insulation materials, and of the various methods of motor insulation, control insulation and switchgear insulation.—A. P.-C.

Arrangement for the Automatic Uniform Regulation of a Number of Electric Motors. Societe Anonyme pour l'Exploitation des Procedes Maurice Leblanc Vickers, Paris & Marcel Touly, Boulogne. Ger. pat. 546,567 (Nov. 23, 1927). The invention concerns itself with a device for the automatic regulation of a number of motors whose speed of rotation is brought in agreement with the speed of rotation of the guide machine which is coupled with the auxiliary alternating generator.—J. F. O.

Electrical Developments in 1931. E. F. Bearce, R. G. Macdonald and W. H. Artz. Paper Trade J. 94, No. 10: 35-38 (March 10, 1932).—An outline of the chief Westinghouse and General Electric developments during 1931. —A. P.-C.

Centrifugal Pumps. J. E. Bond. Paper Mill 55, No. 11: 4, 14, 16 (March 12, 1932).—A brief discussion of the difficulties encountered in handling high-density stock with centrifugal pumps.—A. P.-C.

Improvement to Centrifugal Separators for Paper Stock. C. Roux. Belg. pat. 376,727 (Feb. 28, 1931)— The separator comprises an imperforate centrifugal basket, with solid bottom, the stock being introduced through a central vertical pipe which delivers the stock directly on the bottom of the basket. The stock is discharged over the top of the basket, which is provided with an inwardly projecting flange to retain the heavy impurities. The basket may be built of several assembled units arranged step-like so as to separate impurities of different densities in the different elements.—A. P.-C.

Flat Screen Shaker. Sidney B. Gorbutt assignor to Electric Steel Foundry Co. U. S. pat. 1,848,473 (March 8, 1932).—A rubber diaphragm connected to a spring board is mounted under the screen plates. A shaker rod having an adjustable roller at the lower end is connected to the diaphragm. The shaker rod is operated to vibrate the diaphragm by means of a cam which is urged towards the roll by means of a spring.—A. P.-C.

Paper Machine. William H. Millspaugh. U. S. pat. 1,853,068 (April 12, 1932).—In the manufacture of two-ply paper formed on two high-speed vacuum-forming cylinders, one of the plies is joined to the other directly on the cylinder on which the second ply is formed, by bringing the wire passing around the first cylinder into contact with the second cylinder.—A. P.-C.

Rotary Screen. Joseph A. White assignor to The Moore and White Co. U. S. pat. 1,846,931 (Feb. 23, 1932). —In an outward-flow rotary screen diaphragms are provided between the screen and the inner wall of the vat, so that vibration of the diaphragms will draw the stock through the screen.—A. P.-C.

Horizontal Centrifugal Screen for Pulp and Paper Stock and Similar Materials. Aktiebolaget Kamyr, Karlstad, Sweden. Ger. pat. 543,259.—The invention concerns a horizontal centrifugal screen with a stationary cylindrical screen and a cone shaped drum which revolves therein. This drum revolves entirely in the stock and is provided with ribs to throw the stock.—J. F. O.

Device for the Automatic Guide of Felts, Wires and Similar Objects for Board, and Paper Machines. Otto Nitzsche, Dresden. Ger. pat. 534,706 (March 8, 1930).— J. F. O.

Arrangement for the Drying of Paper Machine Felts. Grahl & Hoehl, Maschinenfabrik und Eisengiesserei, Dresden. Ger. pat. 531,306 (Sept. 6, 1925).—Hot air is blown upon the felt through specially constructed pipes.— J. F. O.

Method of and Apparatus for Forming Thick Sheets from Pulp. John A. Wiener assignor to Masonite Corp. U. S. pat. 1,853,185 (April 12, 1932).—The top of the pulp sheet on the wire is covered with an impervious apron, supported to permit its vertical movement, and air is exhausted from under the wire so as to squeeze the sheet between the wire and the covering apron.—A. P.-C.

Fourdrinier Machine. Lawrence L. Lapeyrousse. U. S. pat. 1,853,625 (April 12, 1932).—The wire is inclined upwardly from the breast roll to a point intermediate the breast roll and the first suction box; over the remainder of its path to the couch roll, the wire is horizontal or inclined downwardly.—A. P.-C.

Dandy Roll. Anton J. Haug. U. S. pat. 1,836,243 (Dec. 15, 1931).—The roll has a solid surface provided with numerous small pockets. This may conveniently be constructed by making the cylindrical surface of the roll of sheet metal and covering it with a wire screen jacket or with a closely perforated sheet-metal jacket.—A. P.-C.

Removing Air From Paper Stock. Judson A. De Cew. U. S. pat. 1,853,849 (April 12, 1932).—The stock after passing through the paper machine screens is passed into a tank under vacuum and is pumped to the paper machine flow box.—A. P.-C.

Paper Machine Suction Box. C. Thiry. Belg. pat. 381,093 (Aug. 31, 1931).—The wire is supported over the suction box by a number of rolls which are each supported at their ends by narrow rotating rolls or disks. The tightness of the suction box is ensured by doctor blades or guard boards engaging the end rolls of the suction box.—A. P.-C.

Driving Means for Rotary Knives for Paper Machines. Daniel R. Francis assignor to The Waterbury Tool Co. U. S. pat. 1,853,267 (April 12, 1932).—The knives are driven by a fluid-pressure motor. The motor in turn is driven by a fluid pump the speed of which is controlled by the speed of the paper being cut.—A. P.-C.

Method and Machine for Perforating Suction-Roll Shells. William H. Millspaugh assignor to The Paper and Textile Machinery Co. U. S. pat. 1,854,053 (April 12, 1932).—The shell is drilled by means of a gang of uniformly spaced drills, and between successive drilling operations the relative position of the shell and drills are shifted by relative rotative movements of the shell and drills through aliquot fractions of a revolution and relative axial displacements for distances which are aliquot fractions of the distances between adjacent drill centers, so that the holes successively drilled are disposed on a continuous spiral of a pitch corresponding to the spacing the drill centers.—A. P.-C.

Table Roll for Fourdrinier Machines. Harrison R. Williams. U. S. pat. 1,841,999 (Jan. 19, 1932).—The surface of the roll consists of a compact spiral of wear-resistant, corrosion-resistant wire, such as stainless steel, brass, aluminum or bronze.—A. P.-C.

Suction Roll. William H. Millspaugh assignor to The Paper and Textile Machinery Co. U. S. pat. 1,834,470 (Dec. 1, 1931).—The perforations of the shell are positioned on two continuous spirals.—A. P.-C.

Machine for Manufacturing Multi-Ply Paper, Cardboard, etc. Gumal Knopp. U. S. pat. 1,829,660 (Oct. 27, 1931).—In a multiple-wire machine having a lower fourdrinier wire and a number of auxiliary upper fourdrinier wires, each of the auxiliary units comprises a movable frame supported on a rigid support, and means are provided for shaking each of the upper wires independently of the main lower wire.—A. P.-C.

Paper Making Machine and Process. Austin E. Cofrin. U. S. pat. 1,832,844 (Nov. 24, 1931).—In a fourdrinier paper machine suction boxes are located under the sheet-forming portion of the wire, having their upper corners facing towards the breast-roll end of the wire and located in the path of the film of seepage carried by the lower surface of the wire. The boxes are arranged to leave open spaces between them and act to wipe the seepage from the wire.—A. P.-C.

Paper Machine. Francis S. McDonnell assignor to Herbert A. Baker. U. S. pat. 1,839,158 (Dec. 29, 1931).—A support for a fourdrinier is located at approximately the center of the active "forming" zone, so that the wire bends in passing over the support. The shake is applied at this support.—A. P.-C.

Suction Roll. George D. Kilberry assignor to Downington Manufacturing Co. U. S. pat. 1,843,876 (Feb. 2, 1932).—The perforations of the shell are arranged so that throughout the limits of its length, defined by the suction box, it is free from circumferentially or longitudinally-extending areas having no perforations.—A. P.-C.

Drier Felt. Thomas Hindle. U. S. pat. 1,834,343 (Dec. 1, 1931).—The felt is built up of several layers composed of two pairs of warps interwoven together, each pair being locked together by an intermediate filing weft in which the warps are crowded laterally into dense and compact groups. Each group is divided from the next by a space devoid of warps, thus forming a multiply fabric with longitudinal sections of compact formation alternating with longitudinal sections devoids of warps and of open porous formation.—A. P.-C.

Paper Winding Apparatus. Earl E. Berry assignor to Beloit Iron Works. U. S. pat. 1,828,888 (Oct. 27, 1931).—One of the drums of a surface-winder is pivotally mounted with respect to the axis of the other drum. When winding is completed, the pivoted drum can be lowered so as to discharge the completed roll of paper.—A. P.-C.

Core Structure for Paper Rolls. Philips D. Parsons assignor to Scott Paper Co. U. S. pat. 1,839,047 (Dec. 29, 1931).—A number of tubular cores are mounted end to end on a shaft of considerably smaller diameter, and centralizing plugs are provided at the ends of each core to keep it in proper axial alinement on the shaft.—A. P.-C.

Electrical Sectional Drive for Paper Machines. Milton T. Weston. U. S. pat. 1,837,803 (Dec. 22, 1931).—In an electrical sectional drive application of the loads to the several sectional motors is controlled by auxiliary synchronous motors which are supplied, as a group, with variable-frequency current.—A. P.-C.

Deckle Edging Device. Prestel O. Dodge. U. S. pat. 1,820,303 (Aug. 25, 1931).—A deckle edge is formed on a sheet of paper by placing the sheet over a depression and pressing a blunt instrument into the depression without contacting the edge thereof, so as to break and sever the paper.—A. P.-C.

Guide Device for Dryer Felts. Hermann Ebenhoch, Heidenau. Ger. pat. 542,981 (April 14, 1931).—J. F. O.

Connection of the Ends of a Drying Felt for a Paper Machine. Aktiengesellschaft der Osterreichischen Fezfabriken, Vienna. Ger. pat. 542,980 (Dec. 6, 1930).—J. F. O.

Arrangement for Guarding Against the Tearing of the Sheet on a Fourdrinier, by means of an Electric Magnetic Controlled Squirt Valve. Josef Fahnrich & Otto Weith, Guggenbach, Austria. Ger. pat. 539,144 (Feb. 4, 1930).—J. F. O.

Hydraulic Press Rolls for Textile Fabrics and Paper Webs. Joh. Kleinewefers Sohne, Krefeld. Ger. pat. 541,292 (Dec. 13, 1927).—A special regulatable accumulator connected with the proper pressure cylinder is provided on each side of the machine. The advantages are independent pressure regulation for each side of the machine.—J. F. O.

Hydraulic Super Calender. Joh. Kleinewefers Sohne Krefeld. Ger. pat. 523,865 (Feb. 8, 1930).—In hydraulic board calenders the press rolls are kept at certain distance apart after they are set according to the thickness desired. Any uneven places cannot be smoothed out by such a pure hydraulic calender, since any increase in thickness of the board the rolls get farther apart. The idea of this invention is to be able to change the hydraulic part of the calender to a rigid non-yielding calender.—J. F. O.

Process for the Manufacture of a Seamless Union of the Ends of a Metal Cloth for Paper Machines. Hutter & Schrantz A. G., Vienna. Ger. pat. 534,705 (Sept. 27, 1928).—J. F. O.

Bearings for a Paper Machine Roll. Vereinigte Kugellagerfabriken Akt. Ges., Berlin. Ger. pat. 533,648 (May 4, 1930). Addition to Ger. pat. 523,977.—J. F. O.

Seam for Metal Cloths, Especially in the Manufacture of Paper. Karl Hein Hoesch, Duren. Ger. pat. 536,603 (Jan. 12, 1930).—J. F. O.

Protection for the Seam in Paper Machine Wires. Rudolph Oschatz, Dresden. Ger. pat. 536,605 (March 6, 1931).—The idea of the invention is a method for the protection of the seam of the wire without causing the usual marks on the sheet of paper.—J. F. O.

High Pressure Stock Outlet for Fourdrinier Machines. Gummal Knopp, Berlin. Ger. pat. 535,589 (Oct. 3, 1929).—An endless moving band is used as the side or front of the head box facing the wire. The thickness of the paper is regulated by the distance of the lower roll above the wire.—J. F. O.

High Pressure Stock Outlet for Fourdrinier Machines. Gummal Knopp, Berlin. Ger. pat. 537,059 (Oct. 15, 1929). Addition to Ger. pat. 535,589.—J. F. O.

Arrangement for the Manufacture of Colored Designed Paper on the Paper Machine. I. G. Farbenindustrie Akt. ges., Frankfurt a.M. Ger. pat. 533,197 (Oct. 27, 1928).—J. F. O.

Mixing Box for Dilute Fiberous Materials, Especially for Raw and Finished Paper Stock. Margarete Wiese, Berlin. Ger. pat. 534,869 (Dec. 25, 1929).—The dilution liquid, for example water, is added to the mixing box at several consecutive places.—J. F. O.

Packing for Between the Cylinder and the Wall of the Vat, in Cylinder Board and Carton Machines. Firma F. H. Riedel, Raschau. Ger. pat. 543,260 (March 14, 1931).—J. F. O.

Packing for the Collar of a Cylinder for a Paper Stock Screen. Paul Wunsche, Boden. Ger. pat. 543,012 (Feb. 21, 1930).—J. F. O.

Automatic Rolling Device for Pulp. Heinrich Heuberg, Walsum. Ger. pat. 532,223 (May 28, 1929).—When the roll of pulp attains a certain diameter, it is displaced and a new roll started.—J. F. O.

Stock Regulator. Aktiebolaget A. Ekstroms Maskinaffar, Stockholm. Ger. pat. 533,005 (Oct. 27, 1926).—A trough for the flow of stock is provided with a dam, thus the flow of stock is faster after the dam than before. Also, because of friction, the speed of flow decreases when the consistency is increased. Two floats are provided, one on each side of the dam, and the impulses the floats received, due to change in speed, is transmitted to regulating valves.—J. F. O.

Process for the Manufacture of an Especially Strong Ground Wood Web. Harald Jensen, Oslo, Norway. Ger. pat. 544,456 (Dec. 20, 1928).—Two containers for

feeding the stock are placed at special positions around a cylinder.—J. F. O.

Process and Arrangement for the Removal and De-watering of Stock Suspensions. G. H. Magnusson, H. Nilsson and G. M. Johansson, Sundsvall, Sweden. Swed. pat. 72,718 (March 21, 1927).—A cell type cylinder which is arranged with vacuum and compressed air.—J. F. O.

Device for a Press Roll for Ground Wood, Pulp and Similar Substances. A. Bol. Karlstads Mekaniska Verkstad, Karlstad. Swed. pat. 72,834 (July 28, 1927).—The press rolls operating together have a corrugated surface longitudinally. The relation between the length and height of each groove and its top is the same or greater then 2:1. The grooves and high points of two rolls working together are so formed and placed to each other, that the distance between the profiles at the normal press position of the rolls are over all the same, so that the layer of stock between the rolls is of the same consistency and at the grooves as well as the high points is subjected to the same pressure.—J. F. O.

Method of Fastening for Rolls. Werner Weitz, Duren. Ger. pat. 537,976 (Feb. 7, 1928).—A shrinkage ring whose cross sectional area is wedge shaped is placed while hot between two other rings.—J. F. O.

Suction Roll for Paper Machines. Philipp Laux, Mannheim Waldhof. Ger. pat. 538,599 (Jan. 7, 1930). Addition to Ger. pat. 492,478.—The invention concerns a method whereby more than a quarter of the circumference from the top of the roll to the bottom can be utilized for suction.—J. F. O.

Method for Hindering the Deposit in the Dead Corners in the Head Box When the Trim of the Sheet is Decreased. Firma J. M. Voith, Heidenheim. Ger. pat. 539,372 (Sept. 9, 1930).—A flow of stock is porduced in the corners.—J. F. O.

Arrangement for the Wet Presses on a Paper and Carton Machine. Fa. J. M. Voith, St. Polten. Czech. pat. 37,273.—The first pair of rolls have as usual, a lower roll of rubber or some other elastic material and the top roll of stone or a polished material; while the second press thus is reversed by having the stone or polished roll on the bottom. In this way the wire and felt marks are removed. The paper is fed into the press by means of compressed air.—J. F. O.

Cylinder Machine for De-watering Paper, Board, Carton. Felix Banning, Jr., Stettin. Ger. pat. 532,017 (July 10, 1928).—J. F. O.

Institute of Paper Chemistry. Anon. Paper Mill 55, No. 8:60, 62 (Feb. 20, 1932) Paper Ind. 13:1440-1441. (March 1932).—A description of the building, arrangement and equipment.—A. P.-C.

Arrangement for Hindering the Formation of Foam on Coating Machines Using Liquids. Praktische Maschinen G.m.b.H. Berlin. Ger. pat. 537,165 (Nov. 29, 1930).—J. F. O.

Arrangement for the Manufacture of One-sided and Two-sided Corrugated Paper. Jacob Moll, Lucka. Ger. pat. 536,141 (Sept. 14, 1929).—One or more paper machines are used in connection with the corrugating machines.—J. F. O.

Process for the Prevention of Foam in the Manufacture of Paper. F. Schact G.m.b.H. Braunschweig. Ger. pat. 539,258 (Oct. 15, 1927).—Mixtures of mineral, plant or animal solvents, such as hydrocarbons, alcohols, ketones, phenols, esters, etc. are added to the finished paper stock.—J. F. O.

Arrangement for the Automatic Addition of Proportionate Amounts of Other Liquids to the Main Liquid Which Itself Changes as to the Amount Required. Atlas Werke Akt. Ges. Bremen. Ger. pat. 519,708 (Dec. 23, 1928).—J. F. O.

Arrangement for the Embossing Calender for the Stamping on of Designs on Paper and Textile Materials, Especially Artificial Leather; by Means of a Pair of Rolls with Designs Thereon. Josef van Liempt, Krefeld. Ger. pat. 524,297 (May 11, 1928).—The purpose of the invention is not to emboss the design as sharply as done up to the present, especially on artificial leather. A felt band is arranged between the embossing roll and the web on which the design is to be imprinted.—J. F. O.

Process for the Addition of Liquids or Gases to Flowing Liquids. Chlorator G.m.b.H., Berlin. Ger. pat. 525,626 (Dec. 23, 1928).—A lever which is located in the collecting basin, influences a suction device for the addition of liquids or gases. The idea of the invention is to suck in a determined quantity of liquid or gas.—J. F. O.

Regulating Cock for the Waste Line Under Suction on a Paper Machine. Johannes Raith, Kniajewo, Bulgaria. Ger. pat. 531,604 (Dec. 25, 1929).—When the sheet breaks or has a hole in it, while on the wire, the suction is broken and the water column breaks, and too much air is taken in with the water. By means of a regulating cock this disadvantage can be removed.—J. F. O.

Process and Device for Indicating a Tear in the Sheet on the Paper Machine. F. H. Banning & Seybold, Duren. Ger. pat. 531,068 (Oct. 13, 1928).—The sheet passes over a narrow slit in a pipe before the first wet press, a vacuum is maintained in the pipe. When the sheet breaks, the break in vacuum accentuates an indicator.—J. F. O.

Arrangement for the Handling of Acids and Liquors, Especially in the Parchmentizing of Paper. Heinrich Nicolaus & Co. G.m.b.H., Kempten. Ger. pat. 531,127 (Jan. 22, 1930).—The sheet is carried over the surface of a large cylinder. The surface of this cylinder is moistened with sulphuric acid by having a small roll revolving in a bath of acid and coming in contact with the large cylinder. Above the cylinder is another roll and acid bath which adds the sulphuric acid direct to the paper. The amount of acid to be added to the paper can be regulated by the distance of the rolls from the paper and cylinder.—J. F. O.

Heating Device, Especially for Acid Evaporaters. Ruhlandwerk Akt. Ges., Berlin. Ger. pat. 543,784 (Jan. 31, 1930).—Special arrangement for the heating tubes.—J. F. O.

Device for Moistening Paper and Other Webs. Backhaus & Co., Remscheid. Ger. pat. 544,457 (Jan. 30, 1931).—Air and water are sprayed onto the paper from a special designed nozzle.—J. F. O.

Moisture Device, Especially for a Web of Paper. Margarete Dercks. Dusseldorf. Ger. pat. 545,593 (June 6, 1930).—The moisture device consists of a covering tube capable of rotation and a spray tube also capable of rotation.—J. F. O.

Cutter for a Roll of Paper with a Water Mark. Jagenburg Werke Akt. Ges., Dusseldorf. Ger. pat. 544,608 (July 10, 1929).—J. F. O.

Cutter and Lay Boy. Gerald Strecker and Theodor Gockel, Darmstadt. Ger. pat. 543,633 (Sept. 17, 1930).—J. F. O.

Device for the Cutting Up of Fiberous Materials for the Manufacture of Paper. Verein für chemische Industrie A. G. Frankfurt a.M. Ger. pat. 539,222 (July 17, 1929).—The invention consists of a rod mill with slits or wire walls.—J. F. O.

Section of the

COST DEPARTMENT

of the

American Paper and Pulp Association

Edited by Thomas J. Burke C. A. Director Cost Dept.

Interim Report Industrial Securities Committee, Investment Bankers Association of America*

John W. Cutler, Chairman

The very low level of industrial financing undertaken during the year 1931 is in itself impressive testimony to the difficulties imposed upon the seekers of new capital. Statistics prepared by the "Commercial and Financial Chronicle" shows total new corporate financing of $2,589,000,000 compared to $5,473,000,000 in 1930, $10,026,000,000 in 1929, and $7,818,000,000 in 1928. Figures for industrial financing alone, as compiled by Standard Statistics Company, reveal an aggregate of some $350,000,000 for the year or only 23.3 per cent of the 1930 total of $1,501,000,000. The greater contraction in offerings of industrial concerns than in those of the corporate group as a whole does not necessarily prove that financing conditions were less favorable to the industrials than to other types of corporations, since it may well reflect healthier factors—superior ability to curtail operations, less need for expansion of facilities during an unfavorable period, and a stronger average working capital position.

Increase in Refunding Financing

In view of the greatly reduced volume of corporate capital flotation recorded during the past twelve months, it is interesting that the period witnessed a sharp upturn in one major sub-division of the new offerings. The total of securities issued for refunding purposes, as opposed to those sold to obtain new capital, had for some years through 1930 established a constant downward trend on both an absolute and relative basis. In 1927 refunding corporate issues amounted to $1,928,000,000 declining to $1,738,000,000 in 1928, to $1,387,000,000 in 1929 and to $528,876,000 in 1930. In 1931, however, the figure rose to $825,517,000. In terms of percentages to the year's total corporate financing, the curve takes a similar direction. Refunding issues accounted for 26 per cent of aggregate corporate offerings in 1927, 22 per cent in 1928, 14 per cent in 1929, 10 per cent in 1930, but 32 per cent in 1931.

A partial explanation of the reversal of the trend last year may be that unusually heavy maturities happened to fall due, but it does not seem reasonable that pure coincidence was entirely responsible. A more likely conclusion in this respect is that corporations found it necessary to refund an extraordinarily large proportion of their maturities rather than to meet them in part or in full out of current funds as they might have done in a more prosperous era. Many concerns doubtless found themselves unable to pay capital obligations without recourse to the new issue market, and others, more plentifully supplied with available liquid assets, were fain to conserve their resources.

Another important contributing explanation probably lies in the necessity of transferring short term bank loans to longer term securities. The precise extent of refunding operations of this type is not readily ascertainable, but that it was substantial is indicated by the use of such phrases as "To reduce bank loans" and "To retire current indebtedness" in connection with the flotation of some issues. In addition to instances where the specific purpose was mentioned, there were certain other offerings of which at least a part of the proceeds were known to have been applied to the reduction of floating debt. It therefore does not seem illogical that the very conditions which discouraged the seeking of new capital should have worked toward measurably increasing the volume of funds obtained to refinance existing obligations.

COMPARATIVE DISTRIBUTION OF INDUSTRIAL FINANCING IN 1931, 1930 AND 1929
(000 omitted)

	Amount	% of Total	Amount	% of Total	Amount	% of Total
Mortgage and secured bonds	$131,512	38.3%	$213,190	18.3%	$261,535	8.4%
Non-convertible debentures	39,510	11.5	328,456	28.2	219,048	7.1
Convertible bonds	130,802	38.1	162,656	14.0	299,458	9.7
Preferred stocks	26,797	7.8	73,394	6.3	257,577	8.3
Convertible preferred stocks	2,250	0.7	66,987	5.8	244,926	7.2
Common stocks	12,409	3.6	318,605	27.4	1,838,600	59.3
	$343,280	100.0%	$1,163,288	100.0%	$3,101,144	100.0%

The above tabulation is approximate and has been compiled from the detailed monthly figures published in the Commercial and Financial Chronicle.

Preferred Stocks—Small Issues:

In our opinion there is a feeling, shared by many members of our committee, that preferred stocks of relatively small industrial companies have no proper position in public financing.

One of our members picked Boston as a test city and

* Bulletin of American Institute of Accountants.

made a study of all preferred stocks publicly offered in the period 1925 to 1929 inclusive. He eliminated preferred stocks of all well known companies which had a national market and eliminated preferred stocks of companies which had bonds ahead of the preferred stock. This left twenty stocks.

About half of these stocks were incorporated in Massachusetts, thereby making their income exempt from Massachusetts tax of 6 per cent. The other half were incorporated in various states. The companies were engaged in miscellaneous business but included no railroads or public utilities.

Out of the 20 stocks only four are not now paying their dividends. All these four were in various branches of the textile industry. None of these four had any sinking fund at all. If approximately $100 had been invested in each of these 20 stocks at the time of issue there would have been a total investment of $2,033. At current market today this investment is worth $1,225. Based on the original purchase price, the income return is about 6½ per cent. After taking into account the four dividends which have been passed, the present income is about 5 per cent.

This study appears to lead to the conclusion that an investment of this type can not be considered more unsatisfactory than a similar investment made in securities of other classes giving a similar high return at the time purchased.

Of the 20 companies examined, ten had a sinking fund based on a percentage of earnings, one had a sinking fund based on the amount of stock outstanding, one had a sinking fund based on both earnings and the amount outstanding, and eight had no sinking fund provisions. Fourteen had provisions restricting the payment of dividends on junior securities, 13 had provisions for the maintenance of net quick assets, 16 had conversion privileges and 16 have paid dividends regularly to date.

In financing of this sort, we believe unusual care should be taken in making a thorough examination, not only into the financial condition of the company and its probable future, but into the ability and integrity of the management. Preferred stocks of this character we believe should always have a sinking fund based on a percentage of net earnings sufficient to retire them entirely within 15 to 25 years; they should always have a provision restricting the payment of dividends on junior securities; a provision for the maintenance of net quick assets; and a reasonable conversion privilege, so that the purchaser can share in the prosperity of the company in consideration for the risk and probable lack of ready marketability.

Study and Improvement of Industrial Accounting

The committee has given a great deal of thought to the study and improvement of industrial accounting and the following embody its specific recommendations:

Treasury Stocks and Bonds

The number of shares and the amount of holdings of company's own unretired stock and bonds should be separately disclosed on the balance-sheet, together with the basis of valuation.

It is advocated by stock-exchange authorities that this asset be excluded from current assets on the balance-sheet. It may be carried as an asset below current assets or deducted from the issued securities on the credit side of the balance-sheet.

A study of the reports of a number of representative companies indicates that no uniformity of treatment exists. Some companies include treasury securities as current assets and others do not.

With regard to the income from securities held in the treasury, it is found that the practice among companies is not uniform. The variations in practice with respect to dividends on treasury stock are noted below:

1—Dividends charged to surplus only on capital stock in the hands of public.

2—Dividends charged to surplus on entire outstanding stock, including treasury stock and dividends applicable to the latter credited to income without disclosure of amount.

3—Dividends charged to surplus and the amount applicable to treasury stock credited to income and the amount shown.

4—Dividends charged to surplus and the amount applicable to treasury stock applied as a reduction of the value at which treasury stock is carried.

It is apparent that uniformity of practice is very desirable in this connection and it would be well if a principle could be enunciated which could be agreed upon by those interested and finally put into practice. This principle might be that dividends charged against surplus should represent only dividends on stock in the hands of the public and that no income should be credited on treasury stock. In any event it should be the rule that if dividends on treasury stock are taken into income, the amount should be disclosed.

Plant Revaluation

It has been noticeable, particularly during the past few years, that corporations have written down their plant accounts by relatively large amounts. In one instance we have a corporation which has written down its fixed asset accounts to $1.00 and apparently intends to keep it at this figure. In order to do this it is necessary for the corporation to make a charge against surplus in any year of the amount expended on new plant and equipment. In the corporation's report it is stated that "the corporation's plants, built in times of moderate cost, were amortized as rapidly as possible and now stand at $1.00. Competing plants, subsequently built in times of higher cost, have yet to be amortized." This appears to us to be conservatism carried to an extreme. The effect on future earnings is to be deplored, inasmuch as no charge will be made against income for depreciation. The tendency of writing down capital assets should be checked because of the consequent effect on earnings. Plant accounts should not be written down below cost, except to the extent that their value has disappeared either through obsolescence, inadequacy or change of art so that assets can no longer be used effectively in the operation of the company's business. This condition should be evidenced by the report of independent appraisers or engineers or, at least, by the company's own engineers or officials. Arbitrary reductions in value should not be countenanced.

Depreciation

The subject of depreciation is discussed in Mr. Hoxsey's article, "Accounting for Investors." Because of its comprehensiveness it can not be dwelt upon at any length here. We can agree with Mr. Hoxsey that "disclosure is never adequate unless the income account shows the amount of the current appropriation for depreciation, nor unless the balance-sheet show separately the accrued reserve for that purpose."

We cannot accept, as a matter of theory even, that the reserve should be shown on the credit side of the balance-sheet.

Mr. Hoxsey also points out the duty of accountants to qualify their certificates in regard to actual rates of depreciation used when they depart from the percentages commonly accepted and also to disclose the fact if either the percentage rates or the nature of the charges as between depreciation and current maintenance have been materially altered since the preceding year.

Surplus Reserves

By surplus reserves is meant those reserves which partake of the nature of segregated surplus set aside to provide for indeterminate liabilities or contingencies. Charges are frequently made against reserves of this nature without the amount or character of such charges having been disclosed. If we are to have a complete picture of the financial operations of a company, it is, of course, necessary to know what these charges are.

During the year 1931, it was deemed advisable by one company to transfer $40,000,000 from surplus to contingency reserves for the purpose of protecting the company's operations and assets against future contingencies. The reserve for general contingencies on the balance-sheet of this company at December 31, 1931, stood at something more than $50,000,000. It is, of course, impossible to say just what will be charged against this reserve but it is evident that this reserve is merely a portion of the surplus of the company earmarked for contingencies and that unless the character and extent of the charges which may be made against it are revealed fully, disclosure of the company's financial affairs will not have been made.

There have been a number of instances in which valuable financial information has been withheld through undisclosed charges to reserves of this character. In this connection it might be well to adopt the rule that all charges which are to be made to surplus reserves should first be made against surplus account and then the amount of these charges restored to surplus by a transfer from reserves. If the items are properly captioned in the surplus account, full disclosure will have been made. It is noted that some companies appear to have adopted this practice. In the report for 1931 of one of the leading steamship companies, there is to be found a charge against surplus of more than $3,000,000, representing an adjustment of floating equipment. As against this there was credited to surplus the same amount, representing a transfer from a reserve arising from reduction in par value of common stock.

Hidden Reserves

As Mr. Hoxsey puts it in his "Accounting for Investors," it is not the job of an accountant to be conservative. It is not his job to be unconservative. It is his job to be simply accurate and see that the statements to which he subscribes convey a true picture to the average investor." No doubt, it is frequently the result of conservatism that hidden reserves are created, but as this conservatism tends to distort the picture, it should be frowned upon.

Studying the report of one of the large companies it developed from the statements that reserves of $11,000,000 were drawn upon during the year 1931. The president's letter has this to say:

"Reserves established in prior years for the protection of business in adverse times were drawn upon to the extent of $11,000,000, thus, limiting the call upon surplus account to $4,412,000 for the payment of dividends declared in 1931."

It is not clear from the statements of this company as to what reserves were drawn upon to furnish this $11,000,000. The company maintains several reserves shown on the credit side of the balance-sheet, in all amounting to over $33,000,000 at December 31, 1931. The company is to be commended for presenting an analysis of each of these reserves in its annual report but it is evident from these analyses that the $11,000,000 did not come from any of them. It could only have come from a reserve which was not disclosed on the balance-sheet. It must have been taken from some reserve deducted from an asset account and it is probable, although not certain, that this reserve had been credited to inventories as indicated by the auditor's certificate which included the following paragraph:—

"The physical inventories of raw materials and supplies, work in process of manufacture and finished goods have been priced at cost or market, whichever was lower, and substantial reserves, accumulated from earnings in prior years, have been deducted from the values so determined."

The amount of these reserves is nowhere shown, nor are the transactions through them disclosed. This company also has charged foreign exchange losses against reserves accumulated from earnings in prior years, but it is not disclosed against what reserves these losses were charged, nor the amount. Here, we believe, the correct principle, would be that all reserves should be clearly stated on the balance-sheet and that all transactions through reserves should be shown and adequately explained.

Surplus

We are in accord with Mr. Hoxsey's opinion that the amount of earned surplus should be stated separately on the balance-sheet. Capital surplus should be regarded as capital, the same as the values attached to capital stock. The question of capital surplus is too broad to discuss here, but we are in agreement with Mr. Hoxsey when he says:

"It is somewhat questionable in most types of business whether the setting up of a large item of initial capital surplus is not coming to be regarded as an equivalent to saying, 'We hope we shall never be forced to be unconservative and that we shall never have losses large enough to impair the capital with which we started business, but should these things occur, we are placing ourselves in a position where the matter can be handled with a minimum of disclosure.'"

All charges and credits to surplus of any significance should be properly explained no matter whether they are made through earned surplus or through capital surplus. Earned surplus should be tied in with the earning statement so that a continuity of financial transactions will appear. This is particularly desirable because there is no unanimity of opinion as to what should be charged in the operating statement under "other deductions" and what should be charged against surplus. It is the hope that future experience will establish a proper division of such charges as between income account and surplus. At the present time we find the income statements of some companies to contain charges which, in the statements of other companies, are found in the surplus account.

Other Income and Other Deductions from Income

These should be shown separately in the operating account and the more important charges or credits should be itemized and explained. If this is done and charges to surplus and other reserves properly itemized and explained then we will have a fairly complete picture of what has happened to a company in a financial way during the period covered by the statements.

The inclusion in consolidated statements of the assets and liabilities of foreign companies presents a problem

which should be given consideration. This problem is particularly pertinent at this time due to the prevailing economic conditions in foreign countries and the restrictions placed upon the transfer of funds from one country to another due to exchange conditions. Under certain circumstances what may properly be considered current assets of a foreign subsidiary are not current assets from the standpoint of the holding company. It is believed that consolidated statements should show the facts with regard to foreign subsidiaries. Two methods can be considered as having already been adopted:

1.—Exclude the assets and liabilities of foreign companies from the consolidation and show the equity in such companies as an asset of the holding company supported by separate consolidated statements of the foreign subsidiaries.

2.—Set up the consolidated figures of the domestic companies and foreign subsidiaries in parallel columns and show the combination of the two groups in a third total column.

There is a thought brought out by Mr. Hoxsey on the subject of consolidated statements in his article "Accounting for Investors" which is here repeated and that is, where a holding company owns a substantial amount of the stock of another company but does not include the accounts of that company in its consolidated statements, then there should be made a clear statement of the holding company's equity in the current profit or loss of that company as well as in its surplus.

Stock Dividends

The matter of stock dividends is a highly controversial one at the present time both as to the question of the charge to be made against surplus, if any, on the part of the issuing company and as to whether or not the recipient should treat stock dividends as income and, if so, at what value.

As to income, the controversy ranges from those who would permit stock dividends to be taken in as income at market values to those, including the more conservative accountants, who hold that the recipient of a stock dividend has received no income but has merely received additional shares which, together with his original holdings, represent the same equity in the net assets of a corporation as his original shares represented.

There is need of a settlement of this controversy and the establishment of a governing principle in respect thereto in order that published statements may reflect a uniform practice.

General

We feel that profits or losses or capital increases or decreases, which are the result of any financial transaction, should pass through the income or surplus account and not directly to the credit of a reserve account. We have the example of one company which acquired 8,200 shares of its own stock at a total cost of $561,910 and in the president's letter accompanying the report of the company, it is stated:

"In keeping wih the practice of the past in connection with similar transactions, no part of the difference between the net cost and the par value of the shares purchased was credited to profit-and-loss account; the sum of the difference, to wit: $258,090, was carried to receivable reserve in addition to usual provision for current operations."

The statements of the company did not disclose this fact and it would remain unknown were it not for the statement in the president's report.

Cost Section

The committee on stock list of the New York stock exchange prefers that additions of this nature be carried directly to capital or capital surplus account. In any event, it should be the practice to make full disclosure in the published accounts of any profits or losses or capital increases or decreases arising from the acquisition and retirement or resale of the company's own stock.

Wisconsin Paper Trade News

[From our regular correspondent]

Appleton, Wis., August 22, 1932.—Construction of forest roads and fire lanes will be continued through federal allotments of $156,000 to the Lake States region, according to E. W. Tinker, Milwaukee, regional U. S. forester. Wisconsin will receive $9,390 out of a road budget of $100,000, Michigan will have $23,000 and Minnesota $68,000. Division of funds is made according to the area of federal forests in each state. The apportionment for fire protection roads is $53,489, of which Wisconsin receives $14,208, Michigan, $27,351 and Minnesota, $11,390. Construction is now in progress on a number of these roads, and fire protection conditions are the best ever known. No fires of any consequence have been reported for almost a year. Rains have been more frequent this season and have been a distinct aid.

The Marathon Paper Mills Company unit at Ashland, Wis., is now the largest manufacturer of a complete line of napkins in the United States, according to statements made in an address to the Ashland Rotary club by B. H. Metternich, mill manager. It is one of the largest and best equipped mills owned by the company. The water from Chequamegon Bay is found to be ideal for manufacture because of its even temperature throughout the year. A filtering plant recently installed eliminates occasional muddiness. The plant also manufactures an extensive line of table cloths and toilet tissues.

W. J. Fahrenkrug, in charge of the maintenance department of the Badger Paper Mills, Peshtigo, Wis., is confined with a fractured leg. It was broken while he was at work in a mill when a steel rule became caught in a pulley and struck him.

J. C. Simonich, who has been associated with the main office of the Kimberly-Clark Corporation at Neenah, Wis., has been transferred to the company's offices at Niagara Falls, N. Y. He will move to his new location September 1.

Northern Europe May Curtail

[From our regular correspondent]

Washington, D. C., August 24, 1932.—Pulp and paper manufacturers in Northern Europe have so far maintained their volume of production and shipments at a relatively high level, but this has been made possible only by the sacrifice of profits and many companies are believed to have been operating at a loss according to Commercial Attache H. C. MacLean at Oslo. This is a situation, of course, that cannot continue indefinitely, and unless there is an improvement in general conditions, which is reflected in higher consumption of paper and pulp, a reduction in output appears inevitable. In fact negotiations have already been begun with a view to an agreement for the early curtailment of news print production in Norway, Sweden and Finland. Such restrictive action is said to be absolutely necessary before the end of the year if consumption and output are to be brought into balance and further disastrous price-cutting avoided. Norwegian and Swedish producers are believed to be in a favorable mood toward such curtailment.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING AUGUST 20, 1932

CIGARETTE PAPER

P. J. Schweitzer, Pr. Polk, Marseilles, 22 cs.; Champagne Paper Corp., Champlain, Havre, 65 cs.; American Tobacco Co., Champlain, Havre, 325 cs.; Standard Products Corp., Champlain, Havre, 35 cs.

WALL PAPER

H. Anders, Hamburg, Hamburg, 1 cs.; F. J. Emmerich, Hamburg, Hamburg, 3 cs.; F. A. Binder, Hamburg, Hamburg, 1 bl., 1 cs.; A. C. Dodman Jr. Inc., Amer. Farmer, London, 1 bl.; Irving Trust Co., Deutschland, Hamburg, 3 cs.; Heemsoth Basse & Co., Deutschland, Hamburg, 1 cs.; F. J. Emmerich, Deutschland, Hamburg, 2 cs., 1 bl.; Globe Shipping Co., Deutschland, Hamburg, 3 bls.

PAPER HANGINGS

W. H. S. Lloyd & Co., Amer. Farmer, London, 3 bls.

NEWS PRINT

Perkins Goodwin & Co., Berlin, Bremen, 369 rolls; Jay Madden Corp., Berlin, Bremen, 200 rolls; W. H. Bell, Markland, Liverpool, N. S., 2707 rolls; Bank of Montreal, Humberarm, Cornerbrook, 8985 rolls; Perkins Goodwin & Co., Milwaukee, Hamburg, 416 rolls; Brooklyn Times, Sydic, Norrkoeping, 656 rolls; Gilman Paper Co., Sydic, Norrkoeping, 412 rolls; Parsons & Whittemore, Inc., Tonsbergfjord, Oslo, 161 rolls; Louis Jacobs, Drottningholm, Gothenburg, 164 rolls; ——, Drottningholm, Gothenburg, 92 rolls.

PRINTING PAPER

Japan Paper Co., Pr. Polk, Genoa, 3 cs.; Burroughs Wellcome & Co., Amer. Farmer, London, 2 cs.; Martin & Bechtold, Milwaukee, Hamburg, 10 cs.

WRAPPING PAPER

Borden Riley Paper Co., Deutschland, Hamburg, 9 cs.; A. Johnson & Co. Inc., Drottningholm, Gothenburg, 811 rolls.

PACKING PAPER

K. H. Schmidt, Hamburg, Hamburg, 2 cs.

DRAWING PAPER

——, Champlain, Havre, 2 cs.

FILTER MATERIAL

H. Reeve Angel & Co. Inc., Majestic, Southampton, 3 bls.

FILTER PAPER

H. Reeve Angel & Co. Inc., Amer. Farmer, London, 2 cs.; H. Reeve Angel & Co. Inc., Majestic, Southampton, 1 cs.; J. Manheimer, Majestic, Southampton, 64 bls., 1 cs.; E. Fougera & Co., Majestic, Southampton, 24 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., Scythia, Liverpool, 10 cs.; C. W. Sellers, Deutschland, Hamburg, 2 cs.; C. W. Sellers, Columbus, Bremen, 6 cs.

TRANSFER PAPER

Atlantic Forwarding Co., Deutschland, Hamburg, 12 cs.

BARYTA COATED PAPER

Globe Shipping Co., Berlin, Bremen, 12 cs.

BASIC PAPER

Globe Shipping Co., Berlin, Bremen, 26 cs.

PARCHMENT PAPER

——, Berlin, Bremen, 7 cs.

METAL COATED PAPER

K. Pauli Co., Hamburg, Hamburg, 4 cs.; K. Pauli Co., Deutschland, Hamburg, 40 cs.; Rohner Gehrig & Co., Deutschland, Hamburg, 1 cs.; Globe Shipping Co., Columbus, Bremen, 28 cs.

COATED PAPER

International F'd'g Co., Hamburg, Hamburg, 2 cs.; Happel & McAvoy, Hamburg, Hamburg, 3 cs.; Happel & McAvoy, Deutschland, Hamburg, 9 cs.

SURFACE COATED PAPER

Rohner Gehrig & Co., Hamburg, Hamburg, 2 cs.; Phoenix Shipping Co., Hamburg, Hamburg, 3 cs.; Gevaert Co. of America, Minnewaska, Antwerp, 19 cs.; E. B. Baehr & Sons, Minnewaska, Antwerp, 3 cs.

BOWL PAPER

Hurley Johnson Corp., Scythia, Liverpool, 25 bls.

WRITING PAPER

Globe Shipping Co., Champlain, Havre, 2 cs.

ENVELOPES

Beckhard Simfred Co. Inc., Deutschland, Hamburg, 4 cs.

TISSUE PAPER

Jay Madden Corp., Hamburg, Hamburg, 22 bls.; P. J. Schweitzer, Pr. Polk, Marseilles, 6 cs.; F. C. Strype, Scythia, Liverpool, 2 cs.; D. F. Young, Scythia, Liverpool, 3 cs.

CARD BOARD

D'Orsay Perfumery, Champlain, Havre, 4 cs.; L. T. Piver, Champlain, Havre., 6 cs.; Coty Processing Co., Champlain, Havre, 16 cs.

MISCELLANEOUS PAPER

Japan Paper Co., Pr. Wilson, Kobe, 18 cs.; Iwai & Co., Pr. Wilson, Kobe, 2 cs.; C. L. Voorhees, Pr. Wilson, Yokohama, 11 cs.; W. Bersch, Hamburg, Hamburg, 4 cs.; ——, Hamburg, Hamburg, 2546 rolls; H. Reeve Angel & Co. Inc., Amer. Farmer, London, 8 cs.; J. Romer, Kwanto

Maru, Kobe, 7 cs.; Corn Exchange Bank, Kwanto Maru, Kobe, 13 cs.; Standard Products Corp., Kwanto Maru, Yokohama, 2 cs.; Keller Dorian Paper Co., Champlain Havre, 3 cs.; ——, Deutschland, Hamburg, 604 rolls; Kraemer & Co., Drottningholm, Gothenburg, 98 bls.; E. H. Sargent & Co., Drottningholm, Gothenburg, 9 cs.; C. F. Forsmann & Co., Schodack, Havre, 2 crates.

RAGS, BAGGINGS, ETC.

S. Birkenstein & Sons, Motomar, Barcelona, 148 bls.; ——, Examelia, Palma, 144 bls. rags; Castle & Overton, Inc., Examelia, Barcelona, 285 bls. rags; American Express Co., Scythia, Liverpool, 6 bls. rags; W. Steck & Co., Inc., Kwanto Maru, Kobe, 80 bls. rags; E. J. Keller Co. Inc., Artigas, ——, 68 bls. bagging; E. J. Keller Co. Inc., Schodack, ——, 114 bls. rags; E. J. Keller Co. Inc., Excelsior, ——, 34 bls. rags; Banco Italiane Trust Co., Deutschland, Hamburg, 30 bls. rags.

OLD ROPE

E. J. Keller Co. Inc., Amer. Farmer, ——, 60 coils; National City Bank, Exeter City Bristol, 72 coils; Banco Italiane Trust Co., Havana, Coruna, 42 bdls.

HIDE GLUE

——, Hamburg, Hamburg, 30 bags; ——, Saturnia, Trieste, 50 bags.

BONE GLUE

——, Deutschland, Hamburg, 300 bags.

CHINA CLAY

——, Scythia, Liverpool, 66 bags.

WOOD PULP

Irving Trust Co., Berlin, Bremen, 300 bls. wood pulp; Castle & Overton Inc., Hamburg, Hamburg, 1105 bls. wood pulp, 221 tons; Gottesman & Co. Inc., Lagaholm, Gothenburg, 600 bls. sulphate; J. Andersen & Co., Saturnia, Trieste, 130 bls. wood pulp; ——, Sydic, Gefle, 1500 bls. sulphite; Perkins Goodwin & Co., Sydic Gefle, 500 bls. sulphite; Pagel Horton & Co. Inc., Sydic, Sikea, 1650 bls. sulphite; Pagel Horton & Co. Inc., Sydic Kopmanholm, 150 bls. sulphite; Price & Pierce Ltd., Tonsbergfjord, Oslo, 125 bls. sulphite; J. Andersen & Co., Tonsbergfjord, Oslo, 500 bls. sulphite; ——, Tonsbergfjord, Oslo, 500 bls. chemical pulp; Gottesman & Co. Inc., Tonsbergfjord, Drammen, 1500 bls. sulphite; Gottesman & Co. Inc., Hallaren, Sweden, 800 bls. wood pulp; Castle & Overton Inc., Deutschland, Hamburg, 560 bls. wood pulp, 112 tons; J. Andersen & Co., Drottningholm, Gothenburg, 375 bls. sulphite; Bulkley Dunton & Co., American Shipper, ——, 500 bls. wood pulp.

PULPWOOD

West Virginia Pulp & Paper Co., Nyhavn, Guysboro, N.S., 1010 cords.

PORTLAND IMPORTS

WEEK ENDING AUGUST 20, 1932

Bulkley Dunton & Co., Sparreholm, ——, 750 bls. wood pulp; Gottesman & Co. Inc., Halleren, Sweden, 2000 bls. wood pulp.

BOSTON IMPORTS

WEEK ENDING AUGUST 20, 1932

The Borregaard Co. Inc., Lagaholm, Gothenburg, 500 bls. chemical pulp; J. Andersen & Co., Lagaholm, Gothenburg; 2300 bls. sulphite; Gottesman & Co. Inc., Lagaholm, Halmstad, 2400 bls. sulphite; Irving Trust Co., Lagaholm, Wiborg, 360 bls. sulphate; Castle & Overton Inc., Lagaholm, Wiborg, 1886 bls. wood pulp; Atkinson Haserick & Co., Pr. Polk, Genoa, 3 cs. paper; G. F. Malcolm & Co., Scythia, Liverpool, 1 cs. tissue paper; Bulkley Dunton & Co., Augsburg, ——, 125 bls. wood pulp; Bulkley Dunton & Co., Bockenheim, ——, 1750 bls. wood pulp; Gottesman & Co. Inc., Hallaren, Sweden, 625 bls. wood pulp.

ALBANY IMPORTS

WEEK ENDING AUGUST 20, 1932

Pagel Horton & Co. Inc., Sydic, Sikea, 3300 bls. sulphite, 558 tons; Pagel Horton & Co. Inc., Sydic, Gefle, 1500 bls. sulphite, 152 tons; Tradesmans Natl Bank, Sydic, Norrsundet, 3375 bls. sulphate, 685 tons; Pagel Horton & Co. Inc., Sydic, Kopmanholman, 600 bls. sulphite, 101 tons; 2100 bls. chemical pulp, 355 tons; J. Andersen & Co., Sydic Hernosand, 1200 bls. sulphite, 203 tons; 3000 bls. sulphate, 508 tons; Bank of America, Equalore, Archangel, 3956 cords pulpwood.

SAVANNAH IMPORTS

WEEK ENDING AUGUST 20, 1932

1st Natl Bank of Boston, P. Maersk, Kobe, 400 bls. bagging; National City Bank, P. Maersk, Kobe, 400 bls. bagging; 1st Natl Bank of Boston, P. Maersk, Shanghai, 250 bls. bagging.

NORFOLK IMPORTS

WEEK ENDING AUGUST 20, 1932

1st Natl Bank of Boston, P. Maersk, Shanghai, 500 bls. bagging; Dixie Jute Bagging Corp., Atrigas, Liverpool, 137 bls. bagging; ——, Artigas, Liverpool, 150 bls. bagging.

PHILADELPHIA IMPORTS

WEEK ENDING AUGUST 20, 1932

Hoffman Lion Mills, Katsuragi Maru, Kobe, 45 bls. rags; ——, Ingria, Barcelona, 34 bls. rags; Castle & Overton Inc., Lagaholm, Wiborg, 702 bls. wood pulp; ——, Lagaholm, Wiborg, 815 bls. sulphate; 6012 bls. sulphite; J. M. Hagy Waste Works, Kwanto Maru, Kobe, 50 bls. rags; Gottesman & Co. Inc., Sydic, Gefle, 500 bls. sulphite; Stora Kopparberg Corp., Sydic, Gefle, 675 bls. wood pulp; Irving Trust Co., Sydic Hernosand, 3000 bls. sulphite; Gilman Paper Co., Sydic Norrkoeping, 916 rolls news print; Castle & Overton Inc., Schodack, Dunkirk, 213 bls. rags.

BALTIMORE IMPORTS

WEEK ENDING AUGUST 20, 1932

The Borregaard Co. Inc., Lagaholm, Gothenburg, 1000 bls. chemical pulp; Gottesman & Co. Inc., Lagaholm, Gothenberg, 1250 bls. sulphite; Bulkley Dunton & Co., Lagaholm, ——, 1250 bls. sulphate; Gottesman & Co. Inc., Lagaholm, Halmstad, 2800 bls. sulphite; Mitsui & Co. Ltd., Kwanto Maru, Nagoya, 6 bls. rags.

Coty Machine Co. Busy

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., August 22, 1932.—Among the busiest concerns in this section is the Coty Machine Company which is running day and night in an effort to complete orders on contract time. The employees are now turning out two large bag producing machines which are expected to be the largest in the world when completed. It is expected that these orders will be ready for shipment within a few weeks and night operations were instituted in order to hasten work.

Shipment of one of the machines will be made to a prominent concern in Mexico while the other is destined to go to the Adams Bag Company, of Toledo, Ohio. Officials claim that the new machines will be capable of producing about 100 valve bags with closed ends every minute and that they will be completed in a single operation. It is claimed that other similar machines take several operations to produce the same product.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, August 24, 1932.

While trading in the local paper market continues light, inquiries for the various standard grades of paper are more frequent and the outlook for the near future is brighter. Sales forces of the leading paper organizations are becoming optimistic and are facing the closing months of the year with confidence.

The news print paper market is practically unchanged. Efforts are still being made to stabilize the industry by leading interests. According to figures compiled by the News Print Service Bureau, stocks at the Canadian mills totalled 47,017 tons at the end of July and at United States mills, 33,369 tons, giving a combined total of 80,386 tons.

Some improvement is noticed in the paper board market and unfilled orders are gaining slightly. Prices remain unchanged. There are also signs of returning good business in the fine paper market. The kraft wrapping paper situation is unsettled. Due to intense competition, prices are easier, although an early recovery is predicted, in some quarters.

Mechanical Pulp

The ground wood pulp market is displaying a fairly firm trend. Production both at home and abroad is proceeding cautiously and there are no excessive accumulations. The contract movement is seasonal. Prices are generally holding to formerly quoted levels.

Chemical Pulp

Steadiness prevails in the chemical pulp market despite increased production in Sweden, due to the recent settlement of the Swedish pulp mill workers strike. There are a number of inquiries around for future account and increased consumption by the paper mills is indicated. Prices are fairly steady.

Old Rope and Bagging

The position of the old rope market remains unchanged. Demand for both domestic and foreign old manila rope is fairly active. Small mixed rope is moving slowly. Old rope prices are generally well maintained. No radical changes were reported in the bagging market. Gunny and scrap bagging are in moderate request.

Rags

Paper mill interest in the domestic rag market is more noticeable. Cotton cuttings are favorably affected by the advance in raw materials. Roofing grades continue dull. Prices are strictly nominal. The imported rag market is little changed, although inquiries are reported more frequent.

Waste Paper

Board mill demand for the lower grades of paper stock is fairly persistent. Offerings are somewhat limited and prices are steady. The better grades of waste paper are holding up well, especially hard white envelope cuttings and soft white shavings. Book stock continues listless.

Twine

Most of the business transacted in the local twine market during the past week was along routine lines. With the approach of Autumn, however, demand for the various grades is expected to become more lively. Despite keen competition, quotations are well maintained, in most instances.

Annual Metropolitan Outing

The Fifteenth Annual Outing of the Metropolitan Bag and Paper Jobbers' Association was held last Thursday, August 18, at the Narragansett Inn, Lindenhurst, Long Island. Despite inclement weather in the late afternoon, approximately 150 members and guests spent a most enjoyable day at this ideal resort.

One of the special features of the event was the annual baseball game between the Paper Jobbers and the Paper Salesmen. The match was spiritedly contested. The Paper Jobbers had a slight edge on their opponents throughout the contest and were finally returned winners by 3 runs to 1.

During the course of the annual outing dinner, President Edward Miller, of the Waxed Products Company, extended a hearty greeting to the visitors and expressed the sentiment of all present in praising the work of the entertainment committee, which consisted of George W. Batz, chairman and Nelson Berger, Jr., with Nelson Berger, Sr., a member *ex officio*.

As a souvenir of the occasion, each member and guest received a Wallace Pencil Fountain Pen, manufactured by the Inkograph Company, Inc., of 159-201 Canal street, New York.

Vancouver Kraft Gets Moratorium

MONTREAL, Que., August 22, 1932.—From Van couver it is announced that on the recommendation of the National Trust Cmpany, holders of Vancouver Kraft Company 6½ per cent first mortgage bonds dated May 15, 1928, have been granted a four years moratorium on interest and sinking fund payments on the bonds which were in default May 15, 1931.

Under the terms of the agreement, Columbia River Paper Company, the parent organization, is to advance sufficient money to meet shut down expenses of maintaining the property, a partly completed 100-ton kraft mill at Port Mellon, B. C. In return for these advances, which will be maintained until May, 1935, the company will receive 4 year, 6½ per cent notes of the Vancouver Kraft Company.

The Columbia River Paper Company, can terminate the agreement on sixty days notice. The amount of the 6½ per cent bonds outstanding is $1,143,000.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, August 24, 1932.

BLANC FIXE.—Demand for blanc fixe is moderately active. Prices are generally holding to previously quoted levels. The pulp is offered at from $42.50 to $45.00 per ton, in bulk; while the powder is selling at from 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—The position of the bleaching powder market is practically unchanged. The contract movement is fairly satisfactorily. Prices are well maintained. Bleaching powder is quoted at from $1.75 to $2.00 per 100 pounds, in drums, at works.

CASEIN.—The casein market is steady. Domestic standard ground is still quoted at 5¼ cents and finely ground at 6¼ cents per pound. Argentine standard ground is selling at 8 cents and finely ground at 8½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Trading in the caustic soda market is fairly active. Prices remain unchanged. Solid caustic soda is quoted at from $2.50 to $2.55; while the flake and ground are selling at from $2.90 to $2.95 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market is exhibiting a fairly strong undertone. Shipments against contract are regular. Imported china clay is quoted at from $10 to $15 per ton, ship side; domestic paper making clay is selling at from $5 to $12 per ton, at mine.

CHLORINE.—Steadiness prevails in the chlorine market. The contract movement is fairly heavy for the time of year. Prices are holding to schedule. Chlorine is quoted at $1.75 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is slightly firmer. The grades of gum rosin used in the paper mills are now quoted at from $3.60 to $3.75 per 280 pounds, in barrels, at works; while wood rosin is selling at $2.50 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—Conditions in the salt cake market are fairly satisfactory. Salt cake is still quoted at from $15 to $16; chrome salt cake at from $12 to $13 per ton, in bulk, at works; while imported salt cake is selling at from $14 to $15 per ton, ship side.

SODA ASH.—Some improvement was noticed in the soda ash market. Prices are generally holding to schedule, without difficulty. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.00; in bags, $1.25; and in barrels, $1.38.

STARCH.—Most of the business reported in the starch market during the past week was along routine lines. Prices are unchanged. Special paper making starch is quoted at $2.44 per 100 pounds, in bags; and at $2.71 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Paper mill demand for sulphate of alumina is fairly persistent. Prices are holding to schedule. Commercial grades are quoted at from $1.25 to $1.40; while iron free is offered at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues quiet. Sulphur is quoted at $18 per long ton, on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—No radical changes were reported in the talc market. Offerings are ample to take care of current needs. Domestic talc is quoted at from $16 to $18 per ton, in bulk, at mine; while imported talc is selling at from $18 to $22 per ton, in bags, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@38.00
Bonds	4.50	@53.25
Index	6.00	@12.00
Writings—		
Extra Superfine	6.50	@15.00
Superfine	6.25	@14.75
Tub sized	4.50	@ 7.00
Engine sized	4.00	@ 5.00
Book, Cased—		
S. & S. C.	5.25	@ —
M. F.	3.75	@ 5.00
Coated and Enamel	6.25	@ 9.75
Lithograph	6.75	@11.25
Tissues—Per Ream—		
White No. 1	.50	@ .70
Anti-Tarnish M. G. only	.65	@ .70
Colored	.70	@ .90
White No. 2	.55	@ .60
Kraft	.65	@ .70
Manila	.55	@ .60
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.00	@ 5.25
No. 2 Wood	3.50	@ 4.00
Butchers	3.37½	@ —
Fibre Papers—		
No. 1 Fibre	4.25	@ 5.50
No. 2 Fibre	4.00	@ 4.75
Common Bogus	1.50	@ 3.00
Screenings	2.00	@ 3.00
Card Middies	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs., No. 1	.09¼	@ —
No. 2	.11¼	@ —
Bleached, basis 20 lbs.	.11¼	@ —

(Delivered New York)

News, per ton—		
Roll, contract	53.00	@ —
Rolls, spot	53.00	@ —
Sheets	58.00	@ —
Side Runs	38.00	@43.00
Kraft—		
No 1 Domestic	4.75	@ 6.00
No. 2 Domestic	2.50	@ —
Southern	2.50	@ —
Imported	2.75	@ 3.50
Boards—per ton—		
News	22.50	@25.00
Straw	29.50	@35.00
Chip	22.50	@25.00
Binders' Boards	62.00	@70.00
Standard 85 Test Liner	24.00	@26.50
Sgl. Mla. Ll. Chip	35.00	@37.50

(F. o. b. Mill)

Wood Pulp Boards	70.00	@80.00

Mechanical Pulp

(On Dock)

No. 1 Imported—		
Moist	19.00	@21.00
Dry	21.00	@22.00

(F. o. b. Mill)

No. 1 Domestic	18.00	@24.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	2.10	@ 2.90
Easy Bleaching	1.60	@ 1.75
No. 1 strong unbleached	1.40	@ 1.60
Mitscherlich unbleached	1.60	@ 1.75
No. 2 strong unbleached	1.25	@ 1.35
No. 1 Kraft	1.50	@ 1.65
No. 2 Kraft	1.35	@ 1.40
Sulphate—		
Bleached	1.85	@ 2.15

(F. o. b. Pulp Mill)

Sulphite (Domestic and Canadian)—		
Bleached	2.10	@ 3.75
Easy Bleaching	1.75	@ 1.90
News	1.50	@ 1.65
Mitscherlich	2.40	@ 2.55
Kraft (Domestic)	1.50	@ 2.75

(Delivered Paper Mills)

Soda Bleached	2.25	@ —

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	4.00	@ 4.25
New White, No. 2	3.00	@ 3.25
Silesias No. 1	3.75	@ 4.00
New Unbleached	5.50	@ 6.00
New Soft Blacks	2.75	@ 3.00
Blue Overall	3.00	@ 3.50
Fancy	1.50	@ 1.75
Washables	1.15	@ 1.40
Mixed Khaki Cuttings	2.50	@ 3.00
Pink Corset Cuttings	2.75	@ 3.25
O. D. Khaki Cuttings	3.00	@ 3.25
Men's Corduroy	1.00	@ 1.25
New Mixed Blacks	2.25	@ 2.50

Old Rags

White, No. 1—		
Repacked	3.00	@ 3.50
Miscellaneous	2.00	@ 2.25
White, No. 2—		
Repacked	1.75	@ 2.00
Miscellaneous	1.50	@ 1.75
Thirds and Blues—		
Repacked	1.50	@ 1.75
Miscellaneous	1.00	@ 1.25
Black Stockings	2.00	@ 2.25
Roofing Rags—		
No. 1	.53	@ .58
No. 2	.48	@ .53
No. 3	.43	@ .48
No. 4	.38	@ .43
No. 5A	.33	@ .38

Foreign Rags

New Rags

New Dark Cuttings	1.40	@ 1.50
New Mixed Cuttings	1.60	@ 1.75
New Light Silesias	3.40	@ 3.50
Light Flannelettes	3.25	@ 3.50
Unbleached Cuttings	5.50	@ 6.00
New White Cuttings	4.25	@ 4.50
New Light Oxfords	3.75	@ 4.00
New Light Prints	2.00	@ 2.25

Old Rags

No. 1 White Linens	5.25	@ 5.50
No. 2 White Linens	4.50	@ 4.75
No. 3 White Linens	3.25	@ 3.75
No. 4 White Linens	1.75	@ 2.25
No. 1 White Cotton	4.00	@ 4.25
No. 2 White Cotton	3.00	@ 3.25
No. 3 White Cotton	2.25	@ 2.50
No. 4 White Cotton	1.40	@ 1.50
Extra Light Prints	1.90	@ 2.10
Ord. Light Prints	1.60	@ 1.75
Med. Light Prints	1.40	@ 1.55
Dutch Blue Cottons	1.35	@ 1.40
French Blue Linens	1.80	@ 1.90
German Blue Linens	1.70	@ 1.80
German Blue Cottons	1.20	@ 1.25
Checks and Blues	1.25	@ 1.30
Lindsay Garments	.75	@ .80
Dark Cottons	.70	@ .75
Old Shopperies	.55	@ .60
New Shopperies	.60	@ .65
French Blues	1.25	@ 1.30

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	1.00	@ 1.10
Domestic	1.15	@ 1.25
Wool Tares, light	.80	@ .85
Wool Tares, heavy	.80	@ .85
Bright Bagging	.75	@ .80
Small Mixed Rope	.80	@ .90
Manila Rope—		
Foreign	1.50	@ 1.60
Domestic	1.50	@ 1.75
New Burlap Cut	1.65	@ 1.75
Hessian Jute Threads—		
Foreign	2.60	@ 2.75
Domestic	2.80	@ 3.00

Old Waste Papers

(F. o. b. New York)

Shavings—		
White Envelope Cuttings	1.60	@ 1.70
Ordinary Hard White No. 1	1.30	@ 1.40
Hard White No. 2	1.25	@ 1.30
Soft White No. 1	1.25	@ 1.35
Flat Stock—		
Stitchless	.50	@ .60
Overissue Mag	.50	@ .60
Solid Flat Book	.45	@ .50
Crumpled No. 1	.35	@ .40
Solid Book Ledger	1.50	@ 1.75
Ledger Stock	.45	@ .55
New B. B. Chips	.20	@ .25
Manilas—		
New Env. Cut	1.25	@ 1.35
New Cuttings	1.00	@ 1.05
Extra No. 1 old	.80	@ .90
Print	.35	@ .40
Bogus Wrapper	.30	@ .35
Container	.25	@ .30
Old Kraft Machine—		
Compressed bales	.60	@ .70
News—		
No. 1 White News	1.15	@ 1.20
Strictly Overissue	.35	@ .40
Strictly Folded	.23	@ .28
No. 1 Mixed Paper	.15	@ .20

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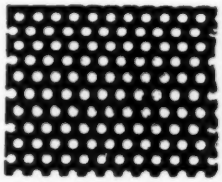

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Twines
(F. o. b. Mill)

Cotton—			
B. C., 18 basis	.30	@	.32
No. 1	.20	@	.22
No. 2	.19	@	.20
No. 3	.17	@	.18
A. Italian, 18 basis	.36	@	.37
Finisned Jute—			
Dark, 18 basis	.18	@	.20
Light, 18 basis	.20	@	.22
Jute Wrapping, 3-6 Ply—			
No. 1	.15½	@	.16½
No. 2	.11¾	@	.12¾
Tube Rope—			
4-ply and larger	.09¾	@	.11¾
Fine Tube Rope—			
4-ply	.11	@	—
3-ply	.12	@	—
2-ply	.13	@	—
Paper Makers Twine			
Balls	.08¾	@	.10¼
Box Twine, 2-3 ply	.07	@	.08
Jute Rope	.09	@	.10
Amer. Hemp, 6	.27	@	.29
Java Sisal—			
No. 1 Basis	.10	@	—
No. 2 Basis	.09	@	—
New Zealand Sisal	.10	@	—
Sisal Lath Yarn—			
No. 1	.12	@	.14
No. 2	.10	@	.12
Manila Twine	.23	@	.28

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.04	@	.11
Superfine Writing	.18	@	.24
No. 1 Fine Writing	.14	@	.18
No. 2 Fine Writing	.12	@	.14
No. 3 Fine Writing	.07	@	.18
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¾
No. 2 Manila	.04½	@	.04¾
Butcher's Manila	.03¼	@	.03¾
No. 1 Kraft	3.50	@	4.50
Southern Kraft	2.62½	@	—
No. 2 Kraft	2.62½	@	—
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03½
Manila Tissue	.07	@	.07½
White Tissue	.07¼	@	.07½

(Delivered Central Territory)

News, per ton—			
Rolls, contract	53.00	@	—
Sheets	58.00	@	—
Boards, per ton—			
Plain Chip	30.00	@	35.00
Solid News	32.50	@	37.50
Manila Lined Chip	40.00	@	45.00
Container Lined—			
85 Test	50.00	@	55.00
100 Test	55.00	@	60.00

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	1.50	@	1.55
No. 1 Hard White	1.40	@	1.45
No. 1 Soft White	1.20	@	1.35
Ledger & Writings	.45	@	.55
Solid Books	.35	@	.50
Blanks	1.00	@	1.05
Krafts	.80	@	.90
New Kraft Cuts	1.25	@	1.30
Manila Env. Cuts	1.25	@	1.30
Ex. No 1 Manila	.90	@	1.00
Print Manila	.30	@	.35
Overissue News	.30	@	.35
Old Newspapers—			
No. 1	.25	@	.30
Mixed Papers—			
No. 1	.15	@	.20
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.04	@	.40
Ledgers	.06	@	.40
Writings—			
Superfine	.10	@	.18
Extra Fine	.15	@	.26
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Fine No. 3	.05½	@	.18
Book, M. F.	.04¾	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.06	@	.16
Coated Lithograph	.06	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.06	@	.09
Manila Sul., No. 1	.03	@	.05
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03¾	@	.04¼
Southern Kraft No. 1	—	@	.04
Southern Kraft No. 2	—	@	.03¾
Common Bogus	.03	@	.04

(Delivered Philadelphia)

News Print Rolls	58.00	@	62.00
Straw Board	50.00	@	—
News Board	22.00	@	25.00
Chip Board	21.00	@	23.00
Wood Pulp Board	85.00	@	95.00
Binder Boards—			
No. 1, per ton	73.00	@	75.00
No. 2, per ton	62.00	@	65.00
Carload lots	60.00	@	65.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.03½	@	.04
New White, No. 2	.02½	@	.04
Light Silesias	.02½	@	.03
Silesias, No. 1	.03	@	.03½
Black Silesias, soft	.02½	@	.03
New Unbleached	.05	@	.05½
Washable, No. 1	.01	@	.01½
Blue Overall	.03	@	.03½
Cottons—According to grades—			
Washable, No. 2	.01	@	.02
New Blue	.01	@	.02
Fancy	.01½	@	—
New Black Soft	.02	@	.03
New Light Seconds	.01	@	.02
New Dark Seconds	1.50	@	1.75
Khaki Cuttings—			
No. 1 O.D.	.03	@	.03½
No. 2 Mixed	.02½	@	.03
Corduroy	.02	@	.02½
New Canvas	.03½	@	.04
New Black Mixed	.02½	@	.03

Domestic Rags (Old)

White No. 1—			
Repacked	2.50	@	3.00
Miscellaneous	1.75	@	2.00
M. G.	3.00	@	3.50
Thirds and Blues—			
Miscellaneous	1.00	@	1.25
Repacked	1.50	@	1.75
Black Stockings (Export)	2.00	@	3.50
Roofing Stock—			
Foreign No. 1	.50	@	.75
Repacked	.70	@	.80

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	—
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	1.80	@	1.90
No. 2 Hard White	1.60	@	1.70
No. 1 Soft White	1.50	@	1.65
No. 2 Soft White	1.30	@	1.45
No. 1 Mixed	.40	@	.50
No. 2 Mixed	.35	@	.40
Solid Ledger Stock	1.00	@	1.10
Writing Paper	.80	@	.90
No. 1 Books, heavy	.55	@	—
No. 2 Books, light	.40	@	—
No. 1 New Manila	1.00	@	1.15
No. 1 Old Manila	.90	@	1.00
Print Manila	.40	@	—
Container Manila	.40	@	.45
Old Kraft	.85	@	.95
Common Paper	.15	@	.20
No. 1 Mixed Paper	.20	@	.25
Straw Board, Chip	.25	@	.35
Binders Board, Chip	.25	@	.35
Corrugated Board	.30	@	.35
Overissue News	.35	@	.40
Old Newspaper	.20	@	.25

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.05½	@	.11½
Rag Content	.12	@	.30
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04½	@	.05½
No. 2 Kraft	—	@	.02½

(F. o. b. Boston)

Southern Kraft	.03	@	.03¼

(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)

Common Bogus	.02	@	.02¾

(Delivered New England points)

News Print, rolls	—	@	52.50
Straw Board, rolls	.009	—	@35.00
Straw Board in Sheets, basis 35s to 70s	—	@	40.00
Filled News Board	25.00	@	30.00
Chip Board	—	@	25.00
Chip Board (Creasing)	25.00	@	27.50
Single Manila Lined Chip	—	@	35.00
Single White, Patent Coated News Board—Binder	45.00	@	55.00
Wood Pulp Board	70.00	@	75.00
Binder Boards	62.00	@	75.00

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Soft White	—	@	1.50
No. 1 Old Manila	.65	@	.75
No. 2 Mixed	.50	@	.55
No. 1 Mixed	.75	@	.85
Solid Ledger Books	1.30	@	1.50
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.60	@	.70
No. 1 Books, heavy	.50	@	.60
No. 1 Books, light	—	@	.30
Crumpled Stitchless Book Stock	1.00	@	1.25
Manila Env. Cuttings	1.25	@	1.30
No. 1 Old Manila	.55	@	.65
White Blank News	1.05	@	1.10
Kraft No. 1	.65	@	.75
Manila	.80	@	.90
No. 1 Mixed Papers	.12½	@	.15
Print Manila	.30	@	.40
Overissue News	.35	@	.45
Old Newspapers	.22½	@	—
Box Board, Chip	.17½	@	.20
Corrugated Boxes	.17½	@	.22½
Screening Wrappers	.25	@	.32½

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.00
Domestic	.75	@	.80
Manila Rope—			
Foreign	1.50	@	1.60
Domestic	—	@	1.60
Transmission Rope	1.00	@	—
Mixing String	—	@	.30
Jute Rope	—	@	.25
Jute Carpet Threads	.25	@	.30
Bleachery Burlap	1.75	@	2.00
Scrap Burlap	.60	@	1.00
No. 1 Scrap Burlap	.80	@	.90
Scrap Sisal	.60	@	.75
Scrap Sisal for shredding	.90	@	1.00
Wool Tares, heavy	.60	@	.65
New Burlap Cutting	.75	@	.90
Australian Wool Pouches	—	@	1.50
Heavy Baling Bagging	.80	@	1.00
Paper Mill Bagging	.50	@	.60
Bagging No. 2	.20	@	.25
No. 1 Burlap	2.75	@	3.00

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	—	@	.01½
New White No. 1	.03¾	@	.04
New White No. 2	.02¾	@	.03¼
Silesias No. 1	—	@	.03
New Black Silesias	.02½	@	.02¾
New Unbleached	.05	@	.05¼
Fancy	—	@	.02½
Washable	—	@	.01¾
Cottons—According to grades—			
Blue Overalls	—	@	.03¾
New Black, soft	.04	@	.04½
Khaki Cuttings	.03	@	.03½
O. D. Khaki	.03½	@	.03¾
Corduroy	.02¾	@	.03
New Canvas	—	@	.05
B.V.D. Cuttings	.04	@	.04¼

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.25
White No. 2—			
Repacked	.02¼	@	.02½
Miscellaneous	.02	@	.02¼
Twos and Blues	.90	@	1.00
Thirds and Blues—			
Repacked	.75	@	.85
Miscellaneous	.70	@	.75
Black Stockings	2.00	@	2.25
Roofing Stock—			
No. 1	.32½	@	.37½
No. 2	.30	@	.35
No. 3	.25	@	.30

Foreign Rags
(F. o. b. Boston)

Dark Cottons	.40	@	.50
New No. 1 White Shirt Cuttings	3.75	@	4.00
Dutch Blues	1.25	@	1.50
New Checks & Blues	2.25	@	2.50
Old Fustians	—	@	.85
Old Linsey Garments	.55	@	.65

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.10¼	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.10¾	@	—
No. 2 Colored	.09	@	.10½
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
Book—			
No. 1 M. F. (Carloads)	6.65	@	—
No. 3 M. F. (Carloads)	6.20	@	—
No. 1 S. C. (carloads)	7.15	@	—
No. 3 S. C. (carloads)	6.65	@	—
No. 4 S. C. (carloads)	5.70	@	—
No. 1 Coated and Litho	12.50	@	—
No. 2 Coated and Litho	11.50	@	—
No. 3 Coated and Litho	10.00	@	11.50
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.40	@	—
White Wrap	3.00	@	—
"B" Manila	4.90	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.75	@	—
Kraft No. 2	5.40	@	—

(Delivered Toronto)

News, per ton—			
Rolls (contract)	52.50	@	53.00
Sheets	57.50	@	—

Pulp
(F. o. b. Mill)

Ground Wood	18.00	@	20.00
Sulphite easy bleaching	40.00	@	—
Sulphite, news grade	38.00	@	—
Sulphite, bleached	48.00	@	58.00
Sulphate	55.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	1.80	@	—
Soft White	1.40	@	—
White Blk. News	1.25	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	—
Light and Crumpled Book Stock	.80	@	—
Ledgers and Writings	1.00	@	—
Manilas—			
New Manila Cut	1.25	@	—
Printed Manilas	.55	@	—
Kraft	1.75	@	—
News and Scrap—			
Strictly Overissue	.50	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.09½	@	.10
Fancy Shirt Cuttings	.06	@	.06N

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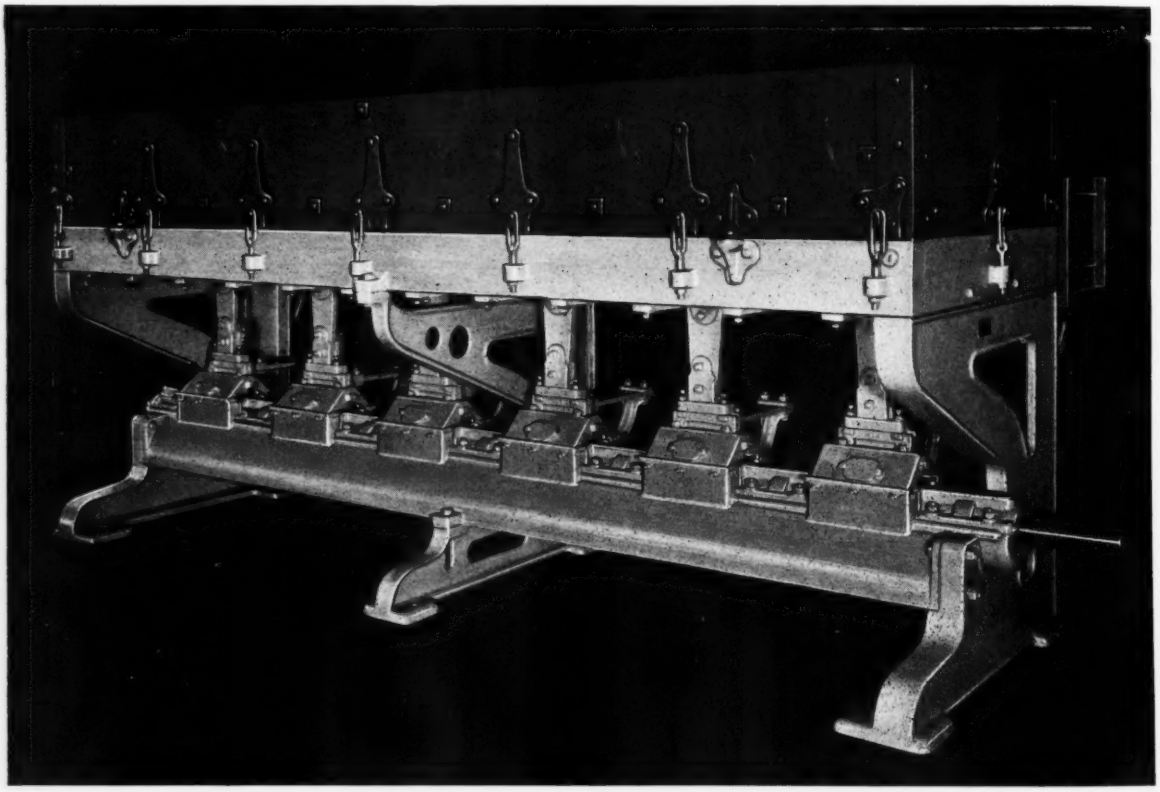

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